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THE JOURNAL

OF THE

American Medical Association

Annual Subscription, $5.00 | PUBLISHED WEEKLY | Single Copies, 15 Cents

VOLUME 71, No. 21 | 535 North Dearborn Street, CHICAGO, ILL. | NOVEMBER 23, 1918

CONTENTS AND DIGEST

Multiple Infections: A Study of the Relation of One Infection to Another. William W. Duke, M.D., France.1703

Effects of complications of infectious diseases among patients. Effect of chronic sepsis and syphilis of the nervous system. Case reports. Allergy. Types of immunity. Practical considerations.

The Treatment of Lye Strictures of the Esophagus. Thomas Hubbard, M.D., Toledo, Ohio 1706

Need of protection against caustic liquids, such as lye. Important features of lye corrosion. Cases of lye trauma. Dilatation of the strictures and methods employed. Dangers and limitations.

Discussed by Drs. Jackson, Keiper, Stucky, Cott, Chamberlin, Beck, Kneedler, Myers and Hubbard.

The Nature of Surgical Shock and Henderson's Theory of Acapnia. A. Osorio de Almeida and Miguel Osorio de Almeida, Rio de Janeiro.....1710

Interest in the subject of shock among investigators. Henderson's view of acapnia. Ex-

(Continued on next page)

Service Flag of the Medical Profession.

MILITARY MEDICINE AND SURGERY

Phagocytic Experiments in Influenza. Ruth Tunnicliff, M.D., Chicago..1733

Epidemic of Bronchopneumonia at Camp Grant, Ill.: Preliminary Bacteriologic Report. Edwin F. Hirsch, M.D., and Marion McKinney, Camp Grant, Rockford, Ill.....1735

Clinical Observations on Influenza. Bernard Fantus, M.D., Chicago..1736

Acute Vegetative Endocarditis with Multiple Secondary Foci of Involvement Due to Micrococcus Pharyngitidis-Siccae. Oscar T. Schultz, M.D., Camp Jackson, Columbia, S. C...1739

MEDICAL MOBILIZATION AND THE WAR 1746

Commissions Offered and Orders to Duty on Acceptance.

Orders to Officers of the Medical Corps, U. S. Army.

Orders to Officers of the United States Public Health Service.

Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Illinois, under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in section 1103, Act of October 3, 1917, authorized on June 14, 1918.
Next Annual Session, Atlantic City, N. J., June 9-13, 1919.
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SAUNDERS, *Publishers*

See Page 3

CONTENTS AND DIGEST— Concluded

periments of the authors. A foreign factor of importance influencing the result. Influence of temperature.

Ocular Headache. J. W. Charles, M.D., St. Louis 1711

Vagueness of term "headache." Eye-strain as a cause. Hypermetropia and astigmatism. Imbalance. Strain of ciliary muscle. "Habit headache" and "headache habit." Value of the field of vision.

Discussed by Drs. Pearson, Wilkinson and Charles.

Tuberculous Effusion, Traumatic in Origin. H. A. Bray, M.D., Ray Brook, N. Y......1714

The reawakening by trauma of a previous benign tuberculous pleurisy in a previously healthy person. Report of case and comment.

Observations on Three Cases of Scurvy. Vilhjálmur Stefánsson, New York 1715

Incidence of scurvy in an arctic expedition. Value of fresh meat as a preventive and curative agent.

Paralysis of the Sixth Cranial Nerve Associated with Otitis Media. John M. Wheeler, M.D., New York....1718

Gradenigo's syndrome. Example of type. Literature. Report of successes of author. Anatomic relations. Prognosis and treatment.

Discussed by Drs. Snyder, Stark and Wheeler.

Acquired Stricture of the Lower End of the Ureter. Robert H. Herbst, M.D., Chicago 1722

Ureteral strictures, congenital and acquired. Congenital origin of strictures. Infecting organisms as a factor in stricture. Report of cases. Etiology and treatment. Importance of early diagnosis.

Discussed by Drs. Lespinasse, Braasch, Caulk, MacGowan, Spitzer, Kolischer, Boogher, Erdman, Barney and Herbst.

The Rational Etiology and Satisfactory Treatment of Dacryocystitis. W. R. Thompson, M.D., Fort Worth Texas 1727

Unscientific principle of lacrimal probe. Author's reason for removing rather than dilating stricture of the nasal duct. Technic of operation. Report of cases.

Discussed by Drs. Woodruff, Green, Prince, Gifford, Black, Mundt and Thompson.

Poliomyelitis: New Developments in the After-Care and Treatment: Better Results in Response to the Demand. Charles Ogilvy, M.D., New York 1730

The part played by the orthopedic surgeon in the care of poliomyelitis. The use of rest and rest splints. Braces and their use. Deformities and their treatment. Muscle training. Bath exercises, massage and electricity.

EDITORIALS

War Gases and Chemical Warfare..1742

A perpetration that has been a boomerang.

Some Factors in Gastric Secretion..1742

Action of secretagogues on the glands by way of the blood.

Medical Demobilization.....1743

Desirability of having medical officers retain some connection with the Army.

War Emergency and Medical Education.....1744

Importance of speedily restoring medical schools to their normal condition.

CURRENT COMMENT

First Aid to Our Naval Forces....1745

Interesting advertisements of a hospital publication.

Possible Dangers in Eucalyptus Oil and Related Products.....1745

Intoxication from products of myrtaceous plants.

A Short Sighted Druggist.....1745

Penalizing the man who calls for an official product.

MEDICAL NEWS 1755

MARRIAGES 1760

DEATHS 1760

PROPAGANDA FOR REFORM 1763

The Kennedy's Tonic Port Case.

CORRESPONDENCE 1764

Is Influenza Transmissible During the Period of Incubation?
An Appeal for Belgian and French Physicians.
Demobilization of Medical Officers.
Protecting the Eyes in Influenza Epidemics.
Discontinuance of Compatibility Test in Serum Treatment.
Control of the Cough in Influenza.
"Attitude of Christian Scientists in the Present Epidemic of Influenza."
A Simple Blood Stain.
Diplococci as a Further Stage of Influenza Bacilli.

QUERIES AND MINOR NOTES 1766

Follicular Opening in External Ear a Remnant of Branchial Cleft.

MEDICAL EDUCATION AND STATE BOARDS OF REGISTRATION

Coming Examinations—Maryland Homeopathic Report — Rhode Island October Examination — Texas Reciprocity Report.....1767

BOOK NOTICES 1767

MEDICOLEGAL

Jurisdiction Over Recruits Afflicted with Disease — Requiring Drafted Person to Submit to Operation — Unconstitutional Laws Providing for Sterilization — Period Employer Must Furnish Medical Services — Competent to Give Opinion on Mental Condition..1768

SOCIETY PROCEEDINGS 1769

Coming Meetings.
Medical Society of the State of Pennsylvania.

CURRENT MEDICAL LITERATURE

American Medical Journals

Convalescent Human Serum Treatment of Influenzal Pneumonia 1771

Open-Air Treatment of Influenza—Use of Influenza Vaccine in Present Epidemic—Fatigue as Contributory Cause of Pneumonia—Experimental Chemical Pneumonia—Spirochetal Flora of Normal Female Genitalia—Specific Poison in Liver Extracts of Rabbits Inoculated with Typhoid and Prodigiosus Bacilli 1772

New Thoracic Murmurs Heard with Refractoscope and Partial Stethoscope—Experimental Hemochromatosis—Hemosiderin Granules in Urine as Aid in Diagnosis of Diseases Causing Siderosis of Kidney — Gold Salts in Treatment of Experimental Tuberculosis—Leukocytes and Marrow in Pneumonia—Case of Spirillosis 1773

Liberation of Antibodies by Foreign Protein—Meningococcus in the Blood—Acute Respiratory Diseases and Empyema—Case of Aspirin Habit — Simplified Method of Aspirating Gastric Contents in Hypersensitive Patients 1774

Cerebral Glioma — Psychopathic Control of Prostitution—Flagellated and Ciliated Protozoa—Serum Treatment of Bacillary Dysentery 1775

Foreign Medical Journals

Paratyphoid in Children—Diagnosis of Tuberculosis in Children—Serologic Investigation of Vincent's Angina 1776

Gunshot Wounds of Joints.....1777

Prophylactic Vaccinations Against Catarrhal Affections of Respiratory Tract — Mishaps from Radiotherapy 1778

Trephining the Newly Born—Puerperal Infection Due to Diphtheria Bacilli—Hemorrhagic Spirochete Bronchial and Pulmonary Infection—Prosthesis for Popliteal Paralysis—Free Grafts—Epidemic Jaundice in Roumania—Elimination of Quinin — Glycosuria After Gastro-Enterostomy—Duodenal Dyspepsia... 1779

Technic for Study of Duodenal Functioning—Addison's Disease — Bacteriotherapy Plus Serotherapy in Meningitis—Hemoptysis in Tuberculosis — Contractures After War Wounds—Sense of Gyration — Prophylaxis of Goiter — Extension Forceps — Sigmoid Diverticulitis 1780

Mumps Pancreatitis—Influenza——The Suprarenals with Severe Burns—Primary Suture of Lacerated Wounds of the Face—Plastic Operation on Lower Lip—Plastic Motor Surgery—Treatment of Chronic Urethritis—Silver Nitrate Neutralizes Mustard Gas—Induced Pneumothorax—Serotherapy in Surgical Infections 1781

Influenza—Idiosyncrasies to Drugs—Influenza—Chemistry of Gastric Juice—Gastrocolic Ligament—Kala-Azar in Spain—Meningomyelocele—Milk at Buenos Aires—Meningitis in Infants—Cephalic Tetanus—Prostatectomy 1782

History of Medicine in Mexico—Plotz' Alleged Typhus Bacillus — Gonorrheal Joint Lesions in Infants—Cystic Sarcoma of the Liver—Inherited Syphilis in Etiology of Gastric Ulcers—Banti's Disease in a Syphilitic—Remote Results of Gallstone Operations—Elephantiasis—Pancreatic Retention — Prophylaxis of Anthrax.....1783

Echinococcus Cysts of the Lungs—Lethargic Encephalitis—History of Hygiene in Argentina — Film Treatment of Burns and Leg Ulcers — Digestive Disturbances in Young Children—Campaign Against Tuberculosis—Blood Changes and Gastric Ulcer—Oxygen in Treatment of Rheumatism — Practical Ophthalmology 1784

TONICS AND SEDATIVES—BOOKS RECEIVED.....Adv. Page 20

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The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 71, NO. 21 CHICAGO, ILLINOIS NOVEMBER 23, 1918

MULTIPLE INFECTIONS

A STUDY OF THE RELATION OF ONE INFECTION TO ANOTHER *

WILLIAM W. DUKE, M.D. (KANSAS CITY, MO.)
Physician Attached to the American Red Cross
FRANCE

It is generally recognized that when a person has one or more infectious diseases, one may influence the other occasionally to the apparent advantage of the patient, but more frequently to his disadvantage. In other words, increased susceptibility to one organism may result from infection with another. This subject has been dealt with in the literature under such titles as mixed infection, metastatic infection, secondary infection and focal infection. It may be illustrated by familiar clinical examples. It is well known, for instance, that latent tuberculosis may become active and rapidly progressive after an attack of tonsillitis, measles or pneumonia. Osler mentions the fact that quiescent maladies, such as congenital syphilis and tuberculosis, may be lighted into activity by vaccination. Urethritis or chronic prostatitis is often unfavorably influenced by the onset of a new infection. Urethritis that is apparently cured may occasionally recur after an attack of tonsillitis, bronchitis or other acute infection. In a patient whom I observed, a urethral discharge in which gonococci were abundant was noticed a few days after a severe attack of tonsillitis. The patient gave a history of having had urethritis two years previously, but since that time had apparently been well and had not been exposed to fresh infection. Chronic cystitis of a mild type may become severe following an attack of diarrhea, cholecystitis or appendicitis. A patient who had specific disease that had been thoroughly treated and had been apparently latent for four years was covered with a copper colored papillary rash and gave a positive Wassermann test at the end of the first week of convalescence from typhoid fever. Another patient had an attack of pneumonia after the appearance of an acute alveolar abscess. Several weeks later he had a recurrence of active tuberculosis that had been latent for many years and had not interfered with the most active mental and physical work.

Chronic infections of a milder nature may also have a deleterious influence on other infectious diseases with which a person may be afflicted. This influence is often quite marked. The ill effect of chronic infections of the nose and throat on persons with tuberculosis is generally recognized, and proper local measures for the cure of these are looked on as an important part in the regimen for treating tuberculosis in many institutions. Oral sepsis may have an important influence on tuberculosis, and the eradication of oral sepsis may be of material value in arresting the progress of the disease.

Staphylococcic infections of the skin, such as acne and chronic furunculosis, according to Sutton, are often more amenable to treatment after the eradication of infected tonsils, alveolar abscesses, etc. In a patient with *Staphylococcus aureus* septicemia of more than two months' duration, the temperature fell to normal a few hours after the extraction of an infected tooth and remained normal for ten days. The case eventually ended in complete recovery. The roots of the tooth showed *Streptococcus viridans* in almost pure growth when cultures were taken, while repeated cultures of the urine and two blood cultures gave a growth of *Staphylococcus aureus*.

One chronic mild infection may influence the course of other chronic mild infections. For example, tonsils that appear to be chronically inflamed often become smaller and appear relatively normal after the eradication of severe oral sepsis. Chronic infection of the nasal sinuses may often be reduced in severity or apparently cured by the removal of infected tonsils or alveolar abscesses. Persistent cases of pyorrhea often yield rapidly to treatment after the removal of chronically infected tonsils or after the extraction of abscessed teeth. A patient who had been subject to recurrent attacks of slight jaundice associated with slight fever and pain in the region of the gallbladder for several years was apparently relieved permanently by the extraction of one abscessed tooth. Numerous similar examples with which careful observers are familiar could be mentioned.

EFFECT OF CHRONIC SEPSIS ON SYPHILIS OF NERVOUS SYSTEM

The ill effect of chronic sepsis on the course of syphilis of the nervous system is often very great, and on account of its practical importance will be dealt with in some detail. Syphilis of the central nervous system was suspected clinically and verified by lumbar puncture in 6 per cent. of 1,000 cases in office practice in which I made examinations on account of general medical complaints. One or more additional chronic infections thought to be of serious moment were found in nearly all of these. The coexistence of syphilis of the nervous system and chronic sepsis in persons observed in office practice is therefore common and very important. The fact that an infection in no wise related to syphilis may hasten the course and augment

* A portion of this article has been reported in brief by the writer in a monograph entitled "Oral Sepsis in Its Relationship to Systemic Disease."

the symptoms of tabes dorsalis is well illustrated by the subjoined cases:

Case 1.—A man, aged 35, had been treated two years for tabes dorsalis. Before treatment was started he had noticed slight ataxia and bladder disturbance and was subject to mild attacks of darting pain in the legs. He improved very satisfactorily under specific treatment, and after he had been free from pain and bladder disturbance for more than a year, he had an attack of acute tonsillitis. With the onset of this there followed a recurrence of the most severe lightning pains that he had ever experienced. Morphin and salicylates to the limit were required to keep him out of agony. Nothing was disclosed except the attack of tonsillitis to account for the sudden recurrence of severe symptoms of tabes. A tonsillar abscess developed, and when this was incised, the lightning pains at once ceased almost completely. A few slight pains were noticed until the tonsils were removed three weeks later. During two years since that time, the patient has been practically free from any active symptoms of tabes dorsalis and has required very little treatment of any kind to prevent recurrence of his previous symptoms.

Since observing this case I have made a careful search for chronic sepsis in patients with syphilis of the nervous system, and on finding it have eradicated it thoroughly before beginning antisyphilitic treatment. It has seemed apparent from the results obtained that many of the symptoms of early tabes dorsalis that one might attribute to progress of the disease, such as lightning pains, increasing numbness, paresthesia, ataxia and visceral disturbances, may be rendered worse by chronic sepsis and may be relieved to a considerable degree by its removal. In fact, one might assert, with reason, that in persons suffering from tabes dorsalis the removal of chronic sepsis as a therapeutic measure for arresting the disease ranks in importance barely second to specific medication itself.

Case 2.—A man, aged 50, with taboparesis, had been given thorough specific treatment for years. When he came under my observation he was unable to attend to business, and spent most of his afternoons in bed. All known methods of treatment had been pushed to the limit, and it appeared that very little improvement could be expected from further specific measures. The patient had large tonsils and several abscessed teeth. These were removed, whereupon the patient improved steadily and to an unbelievable degree. Within less than a month he was able to engage again in business. He has continued mild specific treatment, and has remained in active business since that time.

Case 3.—A man, aged 45, was brought in with a diagnosis of tabes dorsalis. Physical and laboratory examination left no doubt concerning this. The onset had been stormy, and for three weeks the patient had been fairly convulsed with darting pains and had hardly been able to control himself. He was so nervous and irritable at the time of the examination that it was almost impossible for him to remain quiet long enough to permit a specimen of blood to be obtained for examination. Lumbar puncture could not have been performed without general anesthesia. The teeth showed an advanced degree of sepsis. The abscessed teeth were all extracted. Within a few days the patient's condition was so much improved that he went back to work. He felt and acted like a well man even though specific treatment had not yet been administered.

Many cases similar to the foregoing could be cited. These are not unusual cases, but represent almost an average experience.

ALLERGY

The problem of multiple infections and the relationship which one infection bears to another is deeper and of greater interest than the simple fact that a person bombarded by two or more infections is worse off than if he had only one. One infection has an interesting relationship to other infections with which a person may be affected, and may be explained in part at least through phenomena described under the terms allergy, protein sensitization and anaphylaxis.

A true toxin is not formed by any of the microorganisms that ordinarily take part in the pathology of infection in human beings with the exception of tetanus and diphtheria bacilli. Killed cultures of all other organisms or extracts of the organisms, or the culture mediums in which they have grown may be injected in large quantities into healthy guinea-pigs without immediate gross ill effect. They differ strikingly in this respect from tetanus and diphtheria bacilli, each of which produces a true toxin that is poisonous in high degree when administered subcutaneously even in very minute doses to animals. The products formed by other organisms that cause disease may be extremely toxic, however, through an entirely different mechanism, namely, the development in an individual of a condition known as allergy. This term, introduced by Pirquet, is used to designate the changed condition of human beings or animals, caused by infectious diseases or produced by inoculation with alien proteins, which causes the individual to react in a peculiar way if the bacteria responsible for the infectious disease or if the protein with which he may have been inoculated is reintroduced into the circulation. The ensuing reaction is in some respects protective and beneficial, but in other respects may be harmful and even dangerous.

Allergy and its effects are well illustrated by the action of tuberculin. Killed tubercle bacilli or their extracts, or mediums in which tubercle bacilli have grown, may be injected in large amounts into normal untreated animals without gross immediate ill effect. If even minute quantities are injected into animals or persons with tuberculosis, however, the effect is entirely different. Instead of its being apparently inert it causes a reaction which may result quickly in death. The changed condition of the animal produced by the tuberculous infection which renders it sensitive to the products of the tubercle bacillus is the condition known as allergy. Several striking phenomena follow the introduction of tuberculin into tuberculous persons or animals which never appear in the nontuberculous. These are, first, pain, swelling, redness and sometimes necrosis at the site of inoculation. This is known as the local reaction. Second, a rise in temperature and pulse rate and general symptoms of toxemia, which phenomena are known as the general reaction. Third, inflammatory changes at the site of all active tuberculous lesions. This is known as the focal reaction. This last phase is very interesting and may be used in explaining many of the phenomena observed in multiple infections. It may be slight or may be well marked. It may hasten the breaking down of tuberculous tissue and lead to rapid spread of the disease.

Some persons with tuberculosis become so sensitive to products of the tubercle bacillus that amounts of tuberculin as minute as 0.001 mg. are sufficient to produce severe reactions and to cause local inflammatory reactions at the site of all active tuberculous lesions. Others tolerate larger amounts. A reaction as described above can be produced in tuberculous animals by the subcutaneous injection of living tubercle bacilli as well as by extracts of the organisms. If tuberculous

guinea-pigs are inoculated with living tubercle bacilli, a local and general reaction results within a few hours essentially similar to the reaction produced by the extracts of dead bacilli. If nontuberculous animals are similarly inoculated, no such reaction ensues, but the animal after a period of days or weeks becomes ill and dies of tuberculosis. If a localized tuberculous lesion in human beings (such as a tuberculous joint) is subjected to massage and manipulation, living tubercle bacilli or their products gain entry into the circulation, and a transitory rise of temperature and other symptoms of a general reaction may follow. This may be associated with an increase in the inflammatory reaction at the site of all other active tuberculous lesions (focal reaction).

The foregoing well known facts regarding tuberculous infection and the sensitization produced by it are true of infections in general. An attack of typhoid, for example, renders an individual sensitive to the protein of the typhoid bacillus, an attack of furunculosis renders one sensitive to *Staphylococcus aureus,* etc., so that persons having these diseases usually show a local, general and focal reaction if they are inoculated with killed cultures of the offending bacteria. This may temporarily increase the severity of the infection, the degree of which would depend to a certain extent on the quantity of bacteria injected.

Persons with chronic furunculosis may give a general reaction within a few hours if they are inoculated with an excessive quantity of killed staphylococci, and the furuncles are made temporarily worse. Such persons react similarly when they are subjected to the effect of an increased number of living bacteria due to the development of a fresh furuncle. This often causes both a general and a focal reaction. For example, with the development of a fresh furuncle there may appear fever, malaise, etc. (general reaction) and an exacerbation in the inflammatory process in recent furuncles (focal reaction). In fact, signs of activity, such as itching and redness, may appear in the scars of recently healed furuncles. This may be followed by a discharge of pus containing *Staphylococcus aureus.* These well known principles are true of infection in general and can be used in the explanation of many interesting phenomena. It often explains the reason why with the onset of a new infection signs of irritation and inflammation may appear within a few hours at remote points. Case 4 illustrates this:

CASE 4.—A woman, aged 60, relatively normal for her age, had ten infected teeth extracted. Less than twenty-four hours afterward there developed a severe acute follicular tonsillitis. Several days later the infection began to spread from the gums to the cheeks, pharynx and tongue, and give rise to an extensive ulcerative stomatitis. The point to be emphasized here is the fact that the inflammatory reaction in the tonsils, while relatively distant from the gums, occurred within a few hours and preceded by several days the infection of the neighboring tissues of the mouth. It occurred after too brief a period of time to be the result of direct infection of the tonsil by the organisms disseminated from the alveolar process, and must have been a reaction of tissues sensitized by the organisms already localized in the tonsils. It was analogous in every way to the focal inflammatory reaction in the lungs that may be brought about in tuberculous individuals by the injection of an overdose of tuberculin.

It is by no means uncommon to observe pain in the region of the gallbladder, appendix, stomach, joints, cervical glands, etc., a few hours after the extraction of infected teeth, and such may frequently be interpreted as focal reactions caused by the traumatic dissemination of micro-organisms or their products from the alveolar process.

Frequently the clinical manifestations of chronic appendicitis, cholecystitis, gastric and duodenal ulcer, chronic arthritis, etc., clear up rapidly after the extraction of diseased teeth, even though the first effect may have been an increase in the inflammatory processes. Occasionally chronic inflammatory conditions that appear to indicate the need of surgical interference and serious internal diseases that cannot be reached by therapeutic agents partially clear up after as simple a procedure as the extraction of a tooth or the removal of a pair of diseased tonsils. The relief can often be attributed to the fact that sources of bacterial products that have been continuously causing focal reactions in the infected organs have been removed.

This explanation applies very nicely to multiple infections when each lesion is caused by the same micro-organism. It may or may not apply in part to lesions caused by different micro-organisms. This question is an open one about which much might be said. For example, if a person has streptococcic tonsillitis, a latent streptococcic infection in the joints and in the gallbladder, it would be in harmony with accepted theories if an acute exacerbation of the tonsil infection were followed in a few hours by a reaction in the joints and gallbladder that caused pain and other phenomena of a focal reaction. This explanation, as previously mentioned, would not apply in the same way to multiple infection if the various lesions were caused by different micro-organisms, because sensitization against the protein of an infecting organism is thought, and I believe correctly, to be more or less specific. Whatever the theoretical explanation may be, we have this fact, which is beyond dispute: Infection with one micro-organism may lower the resistance against other micro-organisms to a degree that is by no means negligible. I dealt with this above, and mentioned clinical examples. One further illustration even more striking may be added here:

CASE 5.—A patient, aged 35, apparently in good health, had a severe attack of erysipelas, evidently streptococcic in origin. A few days after this a very insignificant pustule no more than 2.5 mm. in diameter which showed *Staphylococcus aureus* on culture began to spread with great rapidity and within a few days gave rise to an extensive phlegmon which persisted for two weeks. In this instance the streptococcic infection certainly had lowered resistance against *Staphylococcus aureus.*

TYPES OF IMMUNITY

There apparently exist two types of immunity—a specific immunity and a nonspecific immunity. Nonspecific immunity has been made use of in the cure of disease by Miller and Lusk, Jobling and Petersen and others, who have injected alien protein of different types (including killed typhoid bacilli) in the treatment of arthritis and other infectious diseases. While the results obtained were not invariably a complete success, they were sufficiently striking to warrant the observers in concluding that nonspecific immunity is often an important factor in the cure of disease. The inoculation of infected persons with an alien protein, such as typhoid bacilli or albumose, may cause general reactions that render the patient's condition temporarily worse. Often it also causes focal reactions in the infected areas. For example, in persons with arthritis the joint pains may often be more severe a few hours

after the intravenous injection of typhoid bacilli. Persons with tabes dorsalis frequently have sharp, darting pains in the legs after similar intravenous injections. The reactions that are produced by the injection of alein proteins are often very similar to reactions that follow inoculation with the specific organism that causes the person's disease. It is not inconceivable that frequently repeated inoculations with a nonspecific virus might cause repeated reactions in inflammatory lesions due to other organisms and in this way do harm and cause an exacerbation of the disease. It is possible that one infection may exert a deleterious influence on lesions caused by other micro-organisms in some such way as this and might in part explain the cure of one infection by the removal of another infection in no wise related to it.

PRACTICAL CONSIDERATIONS

This paper has been written because of its practical bearing on the treatment of infections. Whether or not the explanations given are the correct ones, these facts stand, I believe, proved and beyond dispute: 1. In persons suffering from multiple infections, each infection may increase the severity of the others whether due to the same or to different organisms. 2. Removal of one infection may, under favorable conditions, be followed by spontaneous healing or improvement in the others. A physician often is faced by a combination of infections, some of which are removable, and others not. A consideration of problems of the relationship between infections often aids in the practical handling of the situation. If minor infections are promptly taken care of, those that are more serious may take care of themselves.

CONCLUSIONS

1. When a person has several infections, each may increase the severity of the others whether due to the same or different infecting micro-organisms.

2. Acute exacerbation of one chronic infection may stir up other apparently latent infections into activity.

3. The removal of one infection may under favorable conditions be followed by spontaneous healing or improvement in others.

4. If minor infections are properly taken care of, those that appear serious may yield more easily to treatment.

5. Chronic sepsis exerts a serious influence on the course of tabes dorsalis, and its removal is frequently followed by amelioration in the symptoms of this disease.

Effects of the War on the Next Generation.—The general physical standard of the men who have joined the colors is necessarily on the average distinctly better than that of the men who have not joined. Only men above a certain level of physique are accepted; men of smaller build or weaker constitutions are rejected. A heavy loss of life has occurred, and is yet to occur among the men who are fighting with our armies. No corresponding wastage is occurring among those who are not fighting. The result must be that the average physical standard in this country of males of the ages of say 20-40 will be much lower after the war than it was before the war. This lowered standard will be reflected in children born in subsequent years; and will begin to be recorded at school medical inspections about the year 1921, when the children born in 1916 are entering on their school life.—Dr. D. Morley Mathieson, M.O.H., South Shields, England, *Medical Officer.*

THE TREATMENT OF LYE STRICTURES OF THE ESOPHAGUS*

THOMAS HUBBARD, M.D.
TOLEDO, OHIO

In 1910, Dr. Jackson made earnest appeal for legislation to protect innocents from lye products sold for domestic use. Careless and misleading labels and indiscriminate distribution of caustic cleansers have been responsible for many of these accidents and food and drug laws do not penalize the manufacturer or agent. They are put on the market to be used by housewives and certain it is that the more careless the housewife the more likely she is to use the stuff and, also, the more liable she is to have more children than she can safeguard.

These overworked women and their children deserve what protection the law can give them against the commercial shark and it seems to become the duty of the medical profession to keep hammering away until they are heard. Caustic alkalis and cleansers should be caution labeled and the sale restricted as are all poisons.

There are a few important features of lye corrosion which should be mentioned. The mouth secretions usually protect by dilution the throat and hypopharynx and, as a matter of clinical observation, the real escharotic effect is usually in evidence at the cricoid or about the depth of the bronchial region and above the hiatus.

It seems that at these points the caustic is arrested briefly, or owing to the somewhat delayed spasm excited by the irritant, the bolus is retarded in the lower esophagus and enters the stomach slowly. This accounts for the fact that comparatively few of these victims exhibit stomach lesions, the acid secretions neutralizing as fast as it reaches the organ. The esophagus is a senseless kind of an organ, that is to say, deficient in sensible nerves and inclined to throw spasmodic fits much to the detriment of its own welfare. But we must label this a conservative physiologic action in that it aids in protecting the more complex, vital organ, the stomach. Most of these victims vomit rather promptly and thus does the stomach repay the self-sacrificing esophagus by furnishing the antidote, acid secretions.

CASES OF LYE TRAUMA

I have seen two fatal cases which I will briefly mention to make clear the serious effects of lye trauma in the stomach.

One, a lad, aged about 12, who had swallowed lye at 2 years of age. The stricture was not complete and he had existed on liquid nourishment for ten years. He was diminutive and emaciated to a skeleton—no hair, no teeth, a pitiful little old man. Gastrostomy was done and an effort made to build him up before dilatation of the stricture was attempted, but there was evidently atrophy of the gastric mucosa, and he died in about a month from inanition.

The other fatal case was that of a girl of 5 years who had swallowed lye six months previously. The stricture of esophagus was of moderate degree, but she could not digest anything and died in a few weeks of inanition.

A third case is reliably reported to me. Lye was swallowed at the age of 5. No esophageal lesion followed, but life has

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* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

been a wretched existence well into manhood. He suffers from malnutrition, poor development, bad teeth, etc., due probably to lye destruction of the gastric mucosa.

The youngest patient I have treated for lye stricture was a baby 1 year old. He had eaten a lump of caustic powder sprinkled on the floor preparatory to a scrubbing. The stricture was in evidence about two months later, located near the cardia. The usual roentgen-ray barium examination, followed by the Sippy wire guide under esophagoscopic control, and then gradual dilatation over a period of about two months effected apparent cure. This family left town and I cannot give the end result.

I have seen just such cases in older children and adults with moderate strictures and big dilatations above having obstruction to deglutition periodically when retained food caused increase of inflammation at the site of stricture. These cases should be watched over a period of years.

The next case presents unusual features, in that the strictures involved the lower 3 or 4 inches of the esophagus and the canal was very tortuous, with small sacculations between constrictions. This was shown in the roentgenogram, and esophagoscopic control in the early period of treatment was very difficult because of the impossibility of passing a tube below the bifurcation level.

This lad of 6 had swallowed lye eight months previously and the esophagus had been occasionally bougied roughly, but finally it had closed tightly. No liquids had passed for four days and he was sent in to the hospital by the family physician for gastrostomy.

Under esophagoscopic control, I passed several whalebone filiforms down and got one through; then a larger bougie and finally a small catheter which was left in, fastened to the teeth. Through this he was fed for two days and on removal he swallowed liquids fairly well, but it soon closed, and again the filiform method had to be repeated.

On account of the dilatation and sacculation above the first stricture, it was impossible to get the Sippy wire guide through without the aid of the esophagoscope, and, as a lad of this age, and Scotch at that, naturally and forcefully resented a steady diet of metal tube, I resorted to the braided string method. It took about five days to get 7 yards down. Any shorter length than that (there was probably some snarling) did not give firm enough anchorage to keep the olive guide in the tortuous passage.

(Experiences in water hunger and starvation nerved this lad of 6 up to willingness to aid in the work, and he played about with the spool pinned to his jacket, and his mother daily cut off a few feet which passed clear through. I mention these details because this heroic little fellow deserves it. Few would tolerate it. His companions learned to appreciate his courage and more than one newcomer got a good thrashing for making fun of him.)

Two weeks, with dilatation every other day, brought the lumen up to 29 (F.). Progress was very slow in this eight-months-old multiple stricture.

Even after that it was difficult to avoid entering a saccule. For two years the dilatation was held at 31 (F.) and I considered him cured and with prospect of a perfectly useful esophagus, provided it was occasionally dilated as he grew. At about the age of 9 he died of acute septic meningitis, being sick only four days.

Was gastrostomy indicated in this case after the four days' starvation? It was probably more of a venture to attempt dilatation with possibility of failure than to have done gastrostomy with certainty of getting fluid into the stomach. The conclusion is that in patients exhibiting extreme water hunger, prolonged effort to enter the stenosed esophagus should be avoided and preparations for prompt gastrostomy should be the rule. The string method is not practical because of lack of time.

A little Welsh war baby, aged 2 years, has been under treatment for six months now. She was starving four months after drinking diluted lye. Water hunger was extreme, stools were like chalk and she was emaciated to the limit.

The stricture area begins at the bronchial level and extends to the cardia, three distinct stricture bands being in evidence. For the first month it was necessary to pass the guide through the esophagoscope. The first few dilatations, under light anesthesia and with aid of the esophagoscope, were comparatively easy, but frequently after that it was difficult to pass the guide even though she swallowed liquids readily. There is a crescentic band at the bronchial level and some dilatation above it. In a comparatively recent case like this the difficulty was probably due to softened sloughing mucosa into which the guide would plow.

In all such cases, one must use the esophagoscope and take unusual precautions to avoid perforation until a free straight passage is well established. The dilatation intervals are too long in this case, as the patient lives out of town and progress is slow—now held at 26 (F.) for six months.

DILATATION AFTER GASTROSTOMY

The worst case I have encountered and the one that presents some special features for discussion is that of an adult who swallowed about half an ounce of concentrated sodium hydroxid in an attempt to establish siphon flow by mouth suction through a large rubber tube. Himself a chemist, he was so choked and shocked by the accident that no neutralizing antidote was taken. Spontaneous emesis soon after probably saved him from fatal consequences.

I first saw him about three weeks after the accident and soon thereafter passed the esophagoscope. The throat and hypopharynx were quite denuded of epithelium and a stricture web was forming near the cricoid. This was easily passed, but at the bronchial level the esophagus was nearly closed by edema. Below this, all was macerated and the mucosa peeled off before the tube, or bougie.

There was still considerable pain deep behind the sternum, and it was evident that it was a very serious trauma. No sound was passed, as he was getting sufficient fluid through, and it was decided to try rest and sterile liquid food with local medication to reduce the inflammatory swelling. Bismuth carbonate and argyrol was given, and, to allay spasm and pain, orthoform in emulsion was swallowed prior to taking fluids. Under this treatment he improved.

Three weeks later I succeeded in passing a small tube down to about 2 inches from the cardia, but I could not get even a filiform through the softened, bleeding lower esophagus. Roentgen-ray barium examination about this time was instructive. A fine, narrow thread gravitated into the stomach. In such serious cases it is important to determine the degree of muscle involvement. It would seem that by this means the deglutition muscular activity may be studied. Deep destruction of esophageal wall, including muscle, increases liability of perforation and also affects the prognosis.

Possibly I delayed too long before attempting the string guide method, and this was also unsuccessful. He had acquired the regurgitant habit, and, after getting down a yard or so, would promptly regurgitate, even though fluids passed into the stomach.

Absolute closure came rather suddenly, probably being due to exfoliation of the lower 5 inches of mucosa, and gastrostomy was done to save him from starvation, about four weeks after I first saw him. It was a perfect operation, performed by Dr. Lewis Smead, and three weeks later he was in normal strength and working regularly. Having failed to get the esophagoscope below the bronchial level, I tried to pass the guide from above under fluoroscopic control and failed. Dilatation from below was successful; that is, I passed the bougie —a urethral sound of proper curve—up to 10 inches from the incisors to the upper stricture.

Then I again dilated the firm stricture at this point from above through the esophagoscope and finally succeeded in getting the wire guide through the 5 inches of tortuous canal. Whole plaques of softened mucosa came away with each operation of passing the olives.

Gradually dilatation was accomplished up to 37 (F.), at which we now encounter rather firm resistance, in the form of about four stricture bands in the 5 inches, the worst being at the hiatus.

Was the resting of the esophagus overdone in this case? Probably a bougie could have been passed early, but at the time I first saw him the tip of any bougie seemed to bury itself in any direction in the sloughing tissue, and as submucosa and possibly muscle seemed involved, the indications were to avoid extra trauma. Gastrostomy should have been done two weeks earlier and then the string guide method would not have failed.

Retrograde dilatation seemed very easy on first trial, but on a second and a third attempt with a longer bougie of same curve, I could not find the orifice. Probably this was due to irregular stomach contraction combined with cardia spasm.

METHODS OF DILATATION

Now a few words about the Sippy method. For safety and precision it seems to me ideal. The essentials of the technic, as I have found by experience, are as follows: First, know your measurements; second, be sure that you are well into the stomach with wire guide and then go clear through with the properly selected olive bulb on the cable. If you try too large an olive and fail to get through you may pinch a band of stricture tissue between two of the olives on extraction—rather risky but even at that sometimes beneficial.

The successful dilatation of strictures of this class makes possible but does not insure a cure. The work is only half done. With starvation threatening, these patients are very obedient, but they are liable to neglect subsequent treatments and, every time a stricture tightens up, the tissue is more firm and unyielding. It is important to decide on the maximum dilatation, hold it there, and in children try to keep up with growth. It should be 26 in a 3 year old child and from 35 to 40 in an adult.

I have in mind a rule which establishes the maximum. Dilating olives are graduated on the 1 mm gradation. It usually takes about three stretchings before the olive will pass easily, warranting increase in size the next time. When one has reached a degree of dilatation that allows normal deglutition, one may determine the maximum in that particular case by this test. If five or six dilatations at short intervals bring no improvement, that is, resistance does not yield, the probability is that one has reached the limit. This should be controlled by roentgen-ray bismuth study to determine the amount of dilatation above the stricture (Jackson).

With forcible dilatation of strictures, I must say I have had little experience. In single strictures of limited area, forcible stretching seems indicated. But in lower tortuous multiple strictures with intervening sacculation, such as we usually have in lye cases, it seems to me quite impracticable and even hazardous. The element of danger lies in the fact that the weakest spot will yield first. In crescentic folds this means perforation.

I am in favor of holding the maximum dilatation by passing a specially adapted olive bulb at frequent intervals. This seems better than the flexible bougie. One knows positively when one is through the stricture. With the flexible fiber bougie one is never quite sure, especially in children.

In gastrostomized cases, the stomach tube should be retained even after dilatation is well advanced to give confidence to the patient; and also, in case there is any considerable trauma from dilatation, the esophagus may be rested by direct feeding until inflammatory reaction has subsided

DANGERS AND LIMITATIONS

At best the work is tedious and slow and there is always an unknown element of danger. Much depends on the intelligence and cooperation of the patient. And as lye trauma occurs chiefly in the very young, it is certain that some of these cases are permanently injured and more or less handicapped for life.

There is liability of unwise restriction of diet. The natural habit is to select only soft, easily masticated foods. This results in malnutrition and retards development of teeth, bone and muscle. These unfortunates may be allowed to eat all kinds of food if only they are trained in the art of proper mastication.

Now it is not a surgical triumph to prolong a wretched existence. We must see these patients through and try and make the end-result creditable to the art.

ABSTRACT OF DISCUSSION

Dr. Chevalier Jackson, Philadelphia: It does seem too bad that in practically all of the states of the Union, if a druggist sends out caustic alkali he is compelled to label it, to put a skull and cross-bones on it, giving an antidote; and that caustic alkali is put on the medicine shelf. Next door to the druggist the grocer can sell caustic alkali which goes into the kitchen and is used for dishwashing and various other purposes about the kitchen, but it is not required of the grocer that he put one word on the package as to the poisonous nature of the contents. If there is any mention of poison at all it is so small as to be altogether inconspicuous. This should be regulated by law.

Many other interesting points were made by Dr. Hubbard, but I shall take time to refer to only a very few of them. In regard to the stomach being unaffected, it does seem strange that so little harm is done when caustic fluid goes down into the stomach. I saw one case in which the patient had a pyloric stenosis as well as an esophageal one. It was thought that the pyloric stenosis was due to the effect of caustic alkali; but it seemed to me doubtful. We came to the conclusion that there had existed a congenital pyloric stenosis and that it had increased; but was not due primarily or secondarily to the caustic alkali. In regard to trauma from faulty bouginage, the French clinician, Trousseau, in the pre-esophagoscopic days, said that sooner or later patients with esophageal stricture died of the bougie. Why? Dr. Hubbard referred to a cicatricial band. He knew what the local conditions were because he had looked at them. Blind bouginage is dangerous. Safety necessitates a slow procedure under the guidance of the eye.

Another point that I wish Dr. Hubbard would make reference to in closing is how soon after the accident we ought to use the esophagoscope. I feel reluctant to use it soon. It should be decided whether we should pass the esophagoscope at once and institute the treatment Dr. Hubbard suggests, or wait for three or four weeks. Another point is that in these cases there is nearly always an intermittent difficulty in swallowing. These people will go along with little trouble apparently for awhile and then for perhaps two days at a time they cannot swallow anything, as a result probably of esophagitis

or the lodgment of food, or both. In regard to dilatation, the matter can be summed up in a few words—that with the rapid method the outcome will be a few brilliant cures but a very high mortality. Esophagoscopic bouginage is safe, but it is very slow.

DR. F. KEIPER, Lafayette, Ind.: One case which I have just finished treating temporarily (I say "temporarily" because very often these strictures have to be dilated again), was in a child, three years of age, who had swallowed only a thimbleful of lye. When I examined that esophagus I found about three inches of a very tight stricture at the cardiac end of the stomach. I believe that in all these cases the first thing to do is to have two roentgenograms, one laterally and one anterior posterior, because they give valuable information that we ought to have in the subsequent dilatation of these strictures. Then, again, no examination should be complete unless the esophagoscope is passed. It is surprising how much assistance this gives sometimes. By passing a large esophagoscope you dilate the esophagus more or less, so that on looking down through the esophagoscope you will be able to find the point of entrance into these very narrow strictures. In this case the stricture was so small that it would accommodate only the smallest of the Jackson filiform bougie, on the end of a long steel rod and then with great difficulty. I attempted to pass a Jackson bougie that carries a string, but I was unable to get through because it is a stiff steel bougie. Then it occurred to me to perforate the filiform and use that as a means of passing the string through the stricture, and I was successful in working the string back and forth through that, and cut the stricture. Of course we get but little help thus but it all counts. Patients will ask, how many dilatations will have to be made; but we cannot tell; it may require fifty or sixty and maybe more. I do think, however, that nothing should be passed, not even a filiform bougie except with the esophagoscope in place.

Another point brought out by the essayist is that it is not necessary to anesthetize the patient. This can be done without any anesthetic whatever. Of course, these little patients require to be restrained, by wrapping them tight in a sheet or blanket and then held by an assistant in order to make the first few passages, but after awhile when the patients understand better we do not have much trouble.

There is another class of burns seen sometimes among farmers when they use hydrochloric acid to burn off warts on cattle. Every once in a while some child takes a drink of that stuff. I have seen two cases where children had been sent to me in order to have the esophagus dilated, because of regurgitating of food, but in those cases I never found a stricture of the esophagus. The hydrochloric acid evidently damages the mucosa of the stomach very seriously. Whenever I find a case of this kind the only thing to do is to turn the patient over to a competent internist in order that they may have the proper care and nourishment.

JOSEPH A. STUCKY, Lexington, Ky.: I have had four cases of stricture of the esophagus as the result of swallowing lye. A few years ago when Dr. Jackson first called attention to this matter I suggested that each one of us consider himself a committee of one on publicity and get in touch with the newspapers, having them say something about it. I am sure that in the last year I have seen a fatality as the result of too much force in passing the bougie. I had seen this child the day before, after giving it some bismuth. It passed out of my hands, but a few weeks later I saw an attempt made to use a bougie. I know that it went through and the child died. We should not only use the greatest care, but we should operate by sight alone. Now that we have the roentgen ray and the fluoroscope there is no excuse for our not seeing what we are doing. In two of my cases there has been involvement of the pylorus, and in order to sustain my patients I had to get the assistance of a general surgeon and have the stomach opened and feed the child that way.

I hope that the attention of the public will be called to this and that the grocer as well as the druggist be obliged to label lye.

DR. GEORGE F. COTT, Buffalo: A few years ago I reported sixteen cases of stricture of the esophagus. You have heard the sad side of this, but there is also a bright side. A little boy, about two years of age, who had swallowed some lye, came into the hospital and after several attempts to pass a small bougie it was given up. A woman connected with the hospital took pity on the boy and adopted him. He is now enjoying all the luxuries of wealth—that is one of the bright sides.

DR. WILLIAM B. CHAMBERLIN, Cleveland: One thing Dr. Hubbard failed to mention is the decided value of the Jackson two-pronged dilator, which has a very narrow tip. It can be inserted easily into a very small stricture, provided, of course, that you are able to get the filiform through and realize this is the true opening. In my hands this instrument has proved of very great advantage.

DR. JOSEPH C. BECK, Chicago: I have under my care at present a case of trauma of the esophagus, an acute condition which I believe I was instrumental in bringing about. A man weighing 200 pounds came to me with a history that he had had more or less difficulty in swallowing for a year, and this difficulty is increasing so that at times he has considerable difficulty in swallowing saliva. I noticed that the man had a very severe burn on the hand which dated back before the years when he had trouble with his swallowing. In other words, I suspected that this was a case of stricture of the esophagus that we are apt to see following certain conditions of the external part of the body. At any rate, the esophagoscope was passed behind the cricoid and below that the puncture was made. I suspected carcinoma, but when I looked I found a quantity of liquid, like soup, with a little solid food in it. I sucked that out and used the fluoroscope and roentgen ray. The diagnosis was made, but the interesting point is the complication. The man's esophagus closed up so that he could not get any food down. This was seven or eight days ago and he has not had any food, except thro gh the rectum. I consulted a surgeon in this case, but he would not do a gastro-enterectomy in this case as he believes the man is well nourished and does not need this treatment. The next day the urinalysis showed sugar; he probably had it right along. In diagnosing these cases the important point is the examination.

DR. C. C. KNEEDLER, Pittsburgh: Dr. Hubbard spoke of one of his cases as an ambulant case. Do you not consider them all hospital cases?

DR. EUGENE LEE MYERS, St. Louis: A child accidentally swallowed concentrated lye. After prompt antidotal treatment by Dr. A. H. Juengel of St. Louis, the child was brought to me for the difficulty in swallowing. In due time an attempt was made to do an esophagoscopy which revealed three strictures, the lowermost being very difficult of dilatation. The instruments that I tried to use were of no avail. I was in great fear of perforation, as every attempt I made with the bougie would bring the bougie with a turn to the left, and I realized that I had a tortuous channel. I then proceeded to tr.at this stricture similarly to strictures of the urethra, using glycerin and olive oil as an emollient. I made use of the smallest Killian tube, which has an obturator. With the greatest of care I passed the stricture and removed the obturator and was pleased when the bougie slipped through the tube into the stomach. I then removed the tube, leaving the bougie in situ, after the principle used in leaving a filiform in the urethra. The child was in good condition at that time, but on my return to the hospital that night imagine my surprise and chagrin to find the little one with a temperature of 104 F. and pulse of 170, apparently moribund. I was of the belief that I had punctured the esophagus, but careful examination with Dr. Thomas W. Taylor and Dr. A. H. Juengel brought out the fact that the child had a double pneumonia, the cause of which could not be laid to the anesthetic, as chloroform was used.

Questioning the mother brought out the fact that the child had a severe chest cold previous to the instrumentation and it is probable that our working in the esophagus for the length of time that I found it necessary (two hours) caused the pneumonia to develop. After several dilatations in the office, the family discharged their child, claiming the boy was eating to their satisfaction, notwithstanding all my efforts to have

him bougied at intervals. At the time of my last inquiry the boy was still eating everything without any signs of a stricture.

Dr. Thomas Hubbard, Toledo, Ohio: With reference to legislation, I would say that some years ago, soon after Dr. Jackson's paper appeared, the Bureau of Chemistry and the Department of Agriculture undertook some legislation in this regard, but it evidently has been hanging fire and nothing has been done. But I think that this organization, with the assistance of the Council on Pharmacy and Chemistry, can push it through. Many of these matters suffer delay through indifference and not positive opposition.

How soon to pass the esophagoscope after trauma? That it a very important question. In the last case I passed it three weeks after the trauma. At that time it looked like a ruined esophagus. As a factor in lessening the trauma, a light anesthetic is needed in most of these cases, especially in children. Sometimes sudden closing of the esophagus is caused by exfoliation of the mucous membrane which peels off and plugs the tube. That is what occurred in the case mentioned. Gastrostomy became urgent. In cases where the patient has been known to swallow lye and there is no esophageal lesion, watch out for gastric lesions. The longer the detention in the esophagus the less likely there is to be stomach disturbance. I have had no experience with the Jackson dilator.

I do not think we should consider all of these cases hospital cases. Just as soon as the acute stage is over they ought to be treated and trained at home. The adult and the child has to be trained and you might as well begin it early. They have to be instructed as to the selection and mastication of food, consequently I think they are home cases just as soon as the more important instrumentation period is over.

THE NATURE OF SURGICAL SHOCK AND HENDERSON'S THEORY OF ACAPNIA *

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The problem of shock is at present the direct object of energetic research in various scientific laboratories of the United States. The purpose of this research is to determine in the briefest possible time the true nature of this peculiar condition. The urgent need for such investigation is easily understood in view of the fact that large numbers of wounded soldiers are constantly being lost through our inability to treat cases of this nature successfully.

Before the war, the question of shock had been studied in detail, and distinguished among the publications presented on this subject are those of Yandell Henderson. Some time after the appearance of Henderson's work in which the theory of acapnia was advanced, we had occasion to conduct a series of experiments in order to verify the findings of the American physiologist. A paper[1] dealing with the results of these experiments was published in a French journal, but it appears to have remained entirely unknown to the American medical profession. Thinking that our past experience will now be of some value to other investigators, since all known factors bearing on the question of shock must be taken into consideration, we have decided to summarize briefly the most important observations noted in our former experiments.

There is no necessity for a detailed citation of Henderson's theory or a comprehensive discussion of the series of experiments from which he derived his conclusions, for it is well known that Henderson studied the effect of excessive artificial respiration on dogs which in many instances had the thorax open. These animals, after a period varying from one to three hours, presented a state identical to that condition known as surgical shock.

In experiments so conducted, there occurred the formation of accentuated acapnia, namely, there occurred a considerable reduction of the amount of carbon dioxid in the blood and also in the body tissues.

In his first work, Henderson designated the important part played by carbon dioxid as a hormone and after an extended and ingenious series of deductions, attributed to acapnia the responsibility for the production of the state of shock. One of the most remarkable points about his theory Henderson considers the fact that when artificial respiration is made in such a manner that the air already once breathed is immediately rebreathed, it becomes impossible to obtain shock. Now it is exactly under these conditions that it is impossible to have acapnia, notwithstanding excessive artificial respiration. Today Henderson holds his theory as fundamental and only admits little modifications of the details. Recent research has demonstrated the existence of a condition of acidosis in individuals suffering from shock. Henderson,[2] basing his views on modern revelations concerning the action of the ions of hydrogen, shows himself inclined to believe that this acidosis plays the part of a compensator of the acapnia, and it is able to produce the death of the individual through apnea excessively prolonged.

With Henderson, the question of knowing which of the two factors is primary, the acapnia or the acidosis, should be resolved in this connection by attributing the condition of acidosis to acapnia.

Our first experiments were intended only to verify that excessive artificial respiration actually produced a state of shock. This work was conducted in Rio de Janeiro, Brazil, during the summer of 1912. In numerous attempts, never was it possible to obtain anything that resembled the state of shock as described by Henderson. The artificial respiration was frequently prolonged for four or five hours or more, without the animals showing the slightest symptom that permitted us to think of it as being in a state of shock. In cases in which the thorax was not open, the animal, if taken from the operating table at the close of the experiment, continued to stand up or walked about, and showed itself to be perfectly conscious, although displaying unmistakable signs of great fatigue.

In the face of such negative results, it was immediately evident that there was present in these experiments a factor quite different from that encountered

* Translated from the Portuguese manuscript, June 4, 1918, by Bartle T. Harvey, Rio de Janeiro, Brazil.

1. De Almeida, A. O., and de Almeida, M. O.: Véritable cause du coma produit par la réspiration excessive et prolongée, Jour. de physiol. et de path. gén., 1913, 15, 498.

2. Henderson, Yandell; Prince, A. L., and Haggard, H. W.: Observation on Surgical Shock, The Journal A. M. A., Sept. 22, 1917, p. 965.

in the work of Henderson. A detailed examination of the equipment proved that it was quite the equivalent of that employed by Henderson.

Therefore, only a foreign factor of importance could influence the results to such an extent. Furthermore, this unknown factor was easily discovered as being in the temperature and humidity of the air actually employed for respiration in the various experiments.

In Rio de Janeiro, the temperature of the air in summer frequently ranges from 32 to 34 C. (89.6 to 93.2 F.) during the day, and its percentage of humidity is always very high. Taking these conditions into consideration, we made the following hypotheses:

1. Excessive artificial respiration is able to produce different effects that vary in accordance with the character of the air employed.

2. The primary effect, already well known, is the formation of acapnia.

3. If the temperature and humidity of the air employed are high, there is no appreciable modification of the internal temperature of the animal.

4. If the temperature and humidity of the air employed are sufficiently low, a progressive internal cooling of the animal occurs.

In our experiments, there was evident formation of acapnia without the slightest change of the internal temperature of the animal, and, moreover, the state of shock did not occur.

The results already obtained seem sufficient to justify the conclusion that acapnia is not the cause of the state of shock that Henderson observed it to be. Then the thought occurred that if the artificial respiration was made with air having an approximate temperature of 18 C. (64.4 F.) and a percentage of humidity ranging from 30 to 40, the internal cooling of the animal would be sufficient to induce a state of coma. The importance of this question is significant when it is realized that the foregoing conditions of temperature and humidity are identical with those ordinarily encountered in the laboratories of the United States and Europe. As we did not know positively the particulars in this respect as to Henderson's experiments, it was permissible to suppose that these were approximately the conditions under which his investigations were conducted. Furthermore, if these conditions should prove sufficient to produce internal coooling of the animal up to the point of inducing coma, it would indicate that shock, as observed by Henderson was nothing more or less than this coma itself. A second series of experiments was directed along this line of investigation for the ostensible purpose of determining the truth of this supposition. Artificial respiration was applied with the same intensity as in the first series of experiments, but the temperature of the air was lowered to 18 C., and its humidity was reduced. The animals thus treated soon manifested a rapid fall of internal temperature, and this cooling process was carried to the point of producing a state of coma that terminated in death.

CONCLUSIONS

Without wishing to enlarge on the details of experiments already published, it is believed that the results of the experiments performed permit the following conclusions to be drawn:

1. Excessive and prolonged artificial respiration produces coma and death only when it is made with air having a sufficiently low temperature and humidity.

2. If the temperature and humidity of the air are sufficiently raised, the respiration may be prolonged indefinitely without obtaining this result.

3. Since the conditions described in the preceding paragraph produce strong acapnia, it is clear that this state has no relation to coma.

4. It was the coma resulting from the internal cooling of the animal that Henderson confused with a state of shock.

5. The continuous failure of Henderson to obtain what he thought was shock, when respiration was made with air already once breathed, proves that under such conditions it is impossible to obtain the internal cooling of the animal because expired air is saturated with moisture and has a relatively high temperature.

OCULAR HEADACHE*

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ST. LOUIS

The vagueness of the term headache leads the layman to describe almost any discomfort in the region of the eyes, which has no outstanding characteristic, as "headache." For example, reflex discomforts which bring the patient to the ophthalmologist for headache and which have no foundation in eye disease, such as errors of refraction, muscle imbalance, or a weak accommodation, are frequently caused by a conjunctivitis and are "cured" by lid treatment. Instances are seen in which pressure on the lids give instant, if only temporary, relief from this kind of "headache." These cases must be differentiated from those of deep pains in the eyes without redness, sometimes accompanied by headache, which make one suspicious of nasal sinus disease. These nerve reference pains in the eyes result most frequently from the ethmoids or the frontal sinus, and may be likened to the pain in the knee from hip joint disease.

While headaches from vision for distance alone sometimes occur in otherwise normal people who have ocular errors, these are much more often found when a strain is being forced on the eyes in near work. But headaches occur in so many persons who have only a slight error in refraction or a low degree of muscle imbalance as to force one to the conclusion that the eyes are acting only as an exciting cause which might not be at all effective, were the patient otherwise well and well balanced nervously. The result depends largely on the individual nervous system behind the eyes.

In 1907, Coggeshall and MacCoy[1] found from the study of 1,700 cases that "a neuropathic diathesis is an essential condition of the occurrence of almost all of the chronic headaches of the kind we are discussing," combined with some source of local irritation not otherwise manifested, often with an anemia or a toxemia; and frequently a combination of these causes occurs. The greater the one factor, the less need be

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Coggeshall, Frederick, and MacCoy, W. E.: Headache as a Symptom of Local Disorders, THE JOURNAL A. M. A., Jan. 4, 1908, p. 15.

the other. They also emphasized the fact that the local eye-strain may cause headache only when the patient is nervous from some other cause, for example, when the eye-strain headaches occur only at the time of the menstrual period. The deep dull headache from disease in the nasal sinuses may be combined with a muscle imbalance which is itself a reflex of the sinus inflammation. Or the occipital cases due to uterine or ovarian trouble may be aggravated by a muscle imbalance which is increased by the pelvic disease (Coggeshall and MacCoy).

The vicious circle of high blood pressure and pain may be observed in ocular headaches combined especially with the vascular hypertension caused by nervous contraction of arterioles. One of the finger-posts toward diagnosis in these cases is the surprisingly ready relief which often follows complete rest in bed, which does not so promptly reduce hypertension in organic vascular disease. Patients suffering from high blood pressure alone frequently consult the ophthalmologist for headache and discomfort in reading. No amount of change in the glasses will bring relief; and it becomes very difficult to convince such a person that it is necessary to consult an internist, even when one sees the characteristic changes of arteriosclerosis in the ocular fundi. Usually these hypertension headaches are accompanied by a congestion of the conjunctiva, the treatment of which brings comfort. It is therefore no longer proper to tell the patient seeking relief from headache that glasses alone will cure, simply because there is sufficient error in refraction to cause headache; but rather to explain that the ocular error may be only one factor, and to indicate to him the likely direction toward diagnosis and treatment. He is justified in expecting, in addition to specialism's investigation, medical advice and the inauguration of a medical campaign against his discomfort.

EYE-STRAIN

On the other hand, we know positively that there is a large proportion of headache which is caused by eye-strain alone. G. L. Walton[2] concluded from his statistics that "66 per cent. of patients totally blind from infancy were free from headache." Thirty-one per cent. of seeing patients were free and 29 per cent. with partial or acquired blindness were free. That is, about one half of all headaches are caused by eye-strain. He forever laid to rest the theory that migraine was always to be referred to ocular strain by the assertion that some of the totally blind have migraine, showing that eye-strain cannot be its only cause. Still the alleviation of some cases by glasses indicates that the need of correction of the refraction is sometimes an exciting, or rather, an aggravating, cause.

The headaches caused by ocular errors alone result from a defect in the shape of the eye itself, most frequently manifested by hypermetropia and astigmatism or their combination; from an imbalance of the extrinsic ocular muscles; or from a spasm of accommodation or a strain of the ciliary muscle caused by overuse (frequently during periods of systemic stress as, for example, reading after illness, confinement or a surgical operation).

HYPERMETROPIA AND ASTIGMATISM

The degree of hypermetropia and astigmatism causing headaches is so varying that many high degrees of error cause no discomfort because the patient makes no attempt to obtain clear vision, and therefore there is no great strain on the accommodation, while many low degrees of departure from the normal shape may cause great pain from the effort to see—even more than is normal in certain cases. The American nervous system seems to require a more refined correction even among the lower classes than that of any other nationality. I remember in the clinic of Voelkers at Kiel, a gross error of something like a hypermetropia of three diopters and an astigmatism of equal amount which I had been at great pains to discover. Prof. Voelkers remarked, "Do not bother about the astigmatism. These stupid people cannot make such fine distinctions."

But there are no rules without great and many exceptions in the results of refractive error. A school-teacher came to me in the nineties, complaining of severe headache. One eye converged. When I gave her full correction of a very high hypermetropia, her headache was relieved but her muscle-balance was disturbed in the other direction and the eye diverged, producing a marked deformity. She was nervous and very much displeased until after a reduction in the strength of the glasses and a tonic course of pilocarpin instillations which brought relief from both conditions: but I was never able to prescribe a full correction. I believe that now I should have given her a full correction and then a muscle operation for the deformity later.

IMBALANCE

The question of imbalance of the ocular muscles is complex and the conditions vary so much with the general health of the patient that again one cannot give a definite list of characteristics in the headaches caused therefrom. "In general, frontal headache, perhaps eyeache, combined with slight or great vertigo, nausea, mental confusion, depending on the degree of muscle error and especially in the absence of refractive error, makes one suspicious of insufficiency of an extrinsic muscle which under fatigue may even cause diplopia" (Bull).

A man, aged 31, came to me in 1908 with a history of frontal headaches at times for two years, which had become daily and constant throughout his waking hours for one year, except when he took headache powders. His refractive error was so slight that he was given an addition to his glasses of prisms of 5°+5° bases out for an esophoria. With these he read with ease and his morning headaches disappeared with their use each day. In five days he remarked, "This is the first Sunday in my memory when I could read the entire paper without a headache." He was advised to take regular exercise with an instructor in a gymnasium, the prisms were gradually reduced to 2°+2°, and four years afterward he still worked with comfort without need of a change of glasses.

While actual headache is more infrequent in myopia, it is not too much of a digression to point out that there is a certain mental discomfort connected with the attempt to see, especially in the neurotic myope, which is closely akin to headache. The desire to avoid the appearance of stupidity results in too tense a concentration, which in turn brings on headaches. Another cause of asthenopia, as well as of headache is the half closure of the lids, which results in pressure on the cornea, over the pupil, by the lid margin, which may even cause an actual dent in the epithelium. Bull of Paris demonstrated this occurrence to me after observing it in the eyes of artists who half close their eyes in painting, for the purpose of giving the effect of distance and color values (alinement).

This probably explains some of the discomforts of sitting in the galleries of concert-halls as well as some

2. Walton, G. L.: Boston Med. and Surg. Jour., June, 1905.

of the asthenopias with headaches caused by reading in bed. The sequence of events seems to be pressure on the sensitive nerves of the cornea, constantly maintained over the pupil, with reflex spasm of the ciliary muscle, headache and chronic congestion of the conjunctiva.

While the full correction of a patient's refractive error can be obtained only under a cycloplegic, it very frequently happens that one may not force such strong lenses on the patient immediately. The muscle of accommodation, having been accustomed to make a certain effort for a certain piece of work or distance (of focus), seems to resent assistance by glasses and becomes spasmodic instead of relaxing as we hoped it would do. The effort plus the glass makes a blur and the patient must be given a partial correction for a time in order to avoid another vicious circle of blur, spasm and headache.

STRAIN OF CILIARY MUSCLE

There is a well known form of ocular discomfort with headache which is occasionally observed in patients whose eyes are shaped normally and whose extrinsic muscles are properly balanced, yet the use of the eyes in all near work becomes impossible without the greatest discomfort, which may amount to actual pain in the eyes and head. A strain of the ciliary muscle has occurred when the patient was in a weakened general condition. He would not think of using his arm or leg muscles or his back in lifting weights for fear of strain, but he does not hesitate to attempt the muscular act of accommodation when he is too weak to do anything else. Because he is bored to death, he reads everything in sight.

Therefore the ciliary muscle is subjected to an outrageous amount of abuse, and I believe that the most obstinate trouble we have to treat is a strain of the accommodation. Glasses do not relieve and nothing will restore but complete rest, followed by very gradual resumption of exercise. Complete rest may be obtained only by the use of a cycloplegic because every act of seeing may be accompanied by the use of the ciliary muscle. These cases of painful accommodation are sometimes very puzzling and the patients go from one to another ophthalmologist under the belief that if they could only find the correct glasses, they would become comfortable at once.

This question of painful accommodation, with or without an error in the shape of the eye, is one not lightly to be regarded. The patient may be perfectly and indefinitely comfortable in vision for distance, yet cannot read or sew or embroider without pain in the eyes which often extends to neighboring regions. I believe that there are two distinct causes: (1) a strained ciliary muscle described in the preceding paragraph, and (2) reflexes from focal irritations or inflammations, the most frequent of which are nasal. When we have no history of strain preceding either painful accommodation or ciliary spasm, we cannot avoid the thought that many of these cases are reflex. I remember that when Dr. Sluder and Dr. Ewing began their investigation of frontal and ethmoidal headaches, many of the patients complained of great pain in near work. Dr. Andrews of Chicago has recently emphasized the fact of the reflex path from the nasal mucosa by means of sensory fibers to the sphenopalatine ganglion, the interganglion fibers to the ciliary ganglion, from which arise the motor fibers to the ciliary muscle.

"HEADACHE HABIT" AND "HABIT HEADACHE"

The term "headache habit" is used to designate that condition of the nervous system wherein, after the removal of the principal cause, the patient continues to suffer either constantly, yet in diminishing degree, or interruptedly, with the intervals between attacks becoming wider until there is no more trouble. When glasses have been prescribed, the pain does not subside forever and, although the patient may return in a few days highly satisfied with the new conditions, he still later announces that he had a severe attack the day before, often "the worst I have ever had," due, I suppose, to the contrast between the pain of the relapse and the recent freedom from discomfort. The patient and the physician feel that some remedial measure has been left untried.

Dr. Sluder has observed somewhat the same occurrence after the clearing out of a sinus. Congested nerves and poisoned centers do not always respond immediately to treatment even by glasses, and the physician must counsel patience. In this connection also must be mentioned the "habit headache," which means that the person who has been accustomed to suffer at a given time every day or week may have a tendency to returns at such times after correction has been made, especially when the most onerous burdens come at a special time of day in the life of the patient. This type must, of course, be differentiated from the "psychical recurrent morning pains of frontal sinus suppuration, which was once called sun-pain and supposed to be malarial"; and also from the "psychical nocturnal sphenoidal pains," which are self-evidently another entity (Sluder).

VALUE OF THE FIELD OF VISION

The value of the field of vision to the ophthalmologist in cases of headache is rather negative, in that it is used largely to diagnosticate causes from other sources, rhinologic or neurologic. But in these cases it is often of immense value as an indicator. Indeed a neurologic friend goes so far as to say that no headache should be allowed to go without an investigation of the fields, and to a certain extent he is correct, except that if a field were taken in every case of headache which comes to the ophthalmologist, his entire twenty-four hours would be occupied. There is, however, no doubt that when a headache is accompanied by any evidence of optic nerve involvement (an enlargement of the normal blind spot, for example, leads one to suspect sphenoidal or ethmoidal trouble), also when a headache eludes all other diagnostic methods, it is important to go into the subject of the fields more frequently than is usually done. In this connection, I do not believe that a simple field for form or white is of any value whatever in the diagnosis of beginning nerve involvement. In fact, white is not invaded as a rule until the damage is likely to have been done. In nerve inflammations or atrophies, the order of loss is first a narrowing of the green field, followed by a narrowing of the red, blue and yellow, and finally loss of form.

ABSTRACT OF DISCUSSION

DR. WILLIAM W. PEARSON, Des Moines, Iowa: We can all recall cases like those cited, when we have wondered if it could be possible to find any symptoms anywhere. The doctor has pointed out the cases of weakness and fatigue following long continued illness. So often patients tell us that their headaches followed a major surgical operation, and that they have taken up their eye work at a time when they were abso-

lutely unable to use any other muscles in the body. Surgeons are at fault in not warning patients to refrain from using their eyes during this period. We should all bear in mind that factor of which Dr. Charles spoke with relation to patients whose clear field of vision fails. A few years since a very extensive article appeared in an English journal in regard to the restriction of the field of vision in sinus trouble. It was a good deal along the line of the doctor's paper. One cause that is referred to occasionally in the literature is that of the lid pressure on the globe. I am glad the doctor brought that out. In some individuals who visit the moving picture shows you will notice that their lids are more or less drooped, and you can readily understand how a condition that gives trouble will arise. I am confident that many of these cases are overlooked—headaches resulting from that lid pressure.

Dr. Oscar Wilkinson, Washington, D. C.: One particular form of headache might have been mentioned in connection with Dr. Patrick's paper, but it comes in well with this one. For a number of years I have noticed that basilar headache may be associated with imbalance of the extrinsic ocular muscle, particularly in the exophorias and at times in the hyperphorias. This ocular headache, unlike that spoken of by Dr. Patrick, is not associated with tenderness or with a general infection of the system. It is very frequently, and practically always, associated with the neurotic type of individual with from one to five degrees of exophoria or one to three degrees of hyperphoria. This type of ocular headache is especially associated with neurasthenia. These patients suffer from headache usually the day following severe strain on the eyes; for instance, they wake up in the morning with it. In that respect it must be differentiated from the syphilitic headaches. It is well known that the syphilitic headache is a basilar headache which comes on early in the morning. This headache comes on later than the syphilitic headache and is very often the result of extensive ocular strain.

Dr. Frank Allport, Chicago: This discussion concerns headaches dependent on ocular conditions only. Of course, headaches may arise from other conditions, and I always investigate patients with headaches from all possible angles. If necessary, such patients are referred to general practitioners, neurologists, gynecologists, nose and throat specialists, etc., but I am frequently compelled to limit the cause of the headache to the eye. Headaches are often produced from refractive errors, and especially from astigmatic condition, and more particularly some form of irregular astigmatism. These conditions must, of course, be corrected by glasses, and, when the age of the patient does not prevent, the refractive error should be corrected under the influence of a mydriatic.

Many headaches are produced from instability of the extrinsic ocular muscle, and Dr. Charles advocates the wearing of prisms for such conditions. I do not wish to be understood as saying that prisms should never be worn, but I am convinced that it is a grave error to prescribe them except under very exceptional conditions. A prism is like a crutch—the patient becomes dependent on it, and under its influence the muscle becomes weaker instead of stronger and then stronger prisms must be prescribed. I very much prefer what is known as prism exercise—that is, the exercising or strengthening of certain sets of muscles by prism exercise for a few minutes at a time each day. This almost invariably enhances the power of weak muscles and overcomes the muscular instability and renders the use of prisms in spectacle frames entirely unnecessary.

Dr. Joseph W. Charles, St. Louis: Dr. Pearson spoke of the effect of lid pressure. It is easily explainable. Even one fiber of cotton may cause a lid reflex in testing. The reflex path in these cases of asthenopia caused by lid pressure will be through the long ciliary nerves, through the nasal nerve, through its short root to the ciliary ganglion, the motor fibers from which supply the ciliary muscle. Pressure on the cornea may thus cause spasm of the ciliary muscle. I agree with Dr. Allport in everything he has said about prisms. I think that they have not only been greatly overrated but have done a great deal of damage. The case which I mentioned was an exception. It could not be relieved by any other method; but I do believe in prism exercises.

There is one fact that should be noted in this subject of muscle imbalance. Theobald taught us that a patient may have no imbalance for distance, yet at the reading distance show a decided weakness. He laid down as a general rule that a discrepancy of more than 4 degrees indicated the need of correction or treatment.

TUBERCULOUS EFFUSION, TRAUMATIC IN ORIGIN *

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RAY BROOK, N. Y.

The case here recorded illustrates the reawakening by trauma of a previous benign tuberculous pleurisy in an apparently healthy person. It also tends to confirm clinically recent experiments on pigs in regard to the pleural reaction in tuberculosis.

REPORT OF CASE

History.—Mrs. L., aged 36, married, housewife, is a large robust woman, weighing 185 pounds. The paternal grandmother, mother and one brother died of pulmonary tuberculosis, and the patient was definitely exposed to this disease for a period of years during childhood. Otherwise the family history is unimportant.

Since the age of 16 she has had repeated attacks of quinsy, and for some years past during the winter months has suffered from recurring attacks of bronchitis.

In 1912, three years previous to the present illness, the patient came to me complaining of pelvic discomfort due to prolapsus uteri. At this time an examination of the chest, suggested by the tuberculous history, revealed a pleuritic patch about the size of the palm of the hand, palpable as well as audible at the base of the right lung posteriorly. Otherwise nothing noteworthy was discovered in the chest. The patient could not recall having had pain or other symptoms referable to this region, and the lesion is of unknown duration. Five subsequent examinations during the next three years, the last, three months previous to the present illness, showed practically no change in the physical signs associated with the pleurisy at the base.

Present Illness.—The onset dates from a wrench of the chest muscles, Aug. 15, 1915, while the patient was in the act of rescuing her small child from drowning. The story of the injury is as follows: Hearing the child's cries for help, she rushed to the stream, stepped from the bank to a projecting rock, and, clutching an overhanging branch with her left hand for support, leaned forward and with the other lifted the child from the water. At this time she felt something within her chest "suddenly give way with a distinct snap," followed by a severe pain at the base of the right lung over the site of the latent pleurisy. It was with considerable difficulty that she returned to the house. The pain grew worse, and that evening she was unable to lie on her right side and was quite short of breath. The pain persisted; she gradually grew weaker, was feverish, and on the tenth day a severe chill sent her to bed. I saw the patient at this time. She was acutely ill, was suffering from severe pain in the chest and had lost considerable in weight. The temperature was 103; pulse, 128; respiration, 32. The physical signs indicated fluid at the base of the right lung extending approximately to the lower angle of the scapula. Otherwise the physical examination was negative. The roentgenograms confirmed the physical findings in all essential details.

The fluid accumulated rapidly, finally occupying the lower two thirds of the chest. Nine hundred and fifty c.c. of clear, straw-colored fluid were removed by paracentesis. Stained specimens showed numerous acid-fast bacilli. Animals inoculated with the fluid developed a typical generalized tuberculosis. The diagnosis, therefore, was tuberculous pleurisy.

* From The New York State Hospital for the Treatment of Incipient Pulmonary Tuberculosis.

The patient was ill for about eight months, suffering from a more or less continuous toxemia and losing 40 pounds in weight. The prognosis for a time was distinctly unfavorable. Convalescence then set in. The effusion was absorbed rapidly, and in a few months the patient had fully regained her former state of vigorous health, which has continued to date, a period of approximately two years. The physical examination and roentgenograms one year after recovery failed to reveal evidence of a pleuritic lesion. The fluoroscope showed a slight decrease and retardation in the excursion of the right leaf of the diaphragm.

COMMENT

In apparently healthy persons the development of a tuberculous effusion following trauma of the thorax is usually thus explained: A latent or healed tuberculous focus of the pleura prior to the injury is assumed, except in those instances in which the bacilli gain access to the tissues through an abrasion or wound at the time of the injury. Pathologic studies have demonstrated the frequency of latent foci of the pleura in persons dying of causes other than tuberculosis. It has also been shown that these healed foci may, and often do, harbor living and virulent tubercle bacilli. It is supposed that the trauma causes a rupture of the fibrous capsule about the focus, and that living tubercle bacilli and their products then escape through the tear into the pleural sac. The extent of the effusion and the rapidity with which it develops depend on the number, virulence and distribution of the tubercle bacilli over the pleural surface, and on the allergic state of this tissue.

The clinical data in support of this theory, so far as I have reviewed the literature, is not conclusive. In the recorded cases, the tuberculous focus was not detected prior to the injury, but its presence assumed after detection of the effusion. Furthermore, the time interval between the trauma and the recognition of the effusion in most instances was sufficiently long to admit of the possibility of other causative factors.

These criticisms are not applicable to the present case, since a latent focus of the pleura was recognized several years previous to the injury, and its reawakening by trauma was apparently established from the clinical notes submitted.

At the time of the injury the patient was stooping forward, the left hand raised slightly above the body grasping a limb for support, and the other stretched forward lifting the child (55 pounds in weight) from the water. This effort imposed a severe strain on the muscles of the back, especially those of the right side, and no doubt resulted in the tearing of pleural adhesions, which would account for the sudden and severe pain in the chest. As tubercle bacilli were discovered in the effusion, one may assume that with the tearing of the pleural adhesions, tubercle bacilli were liberated and distributed over a greater or less area of the pleural surface. This was followed by an acute inflammation with rapid accumulation of fluid.

The case, therefore, is of interest in giving added support to our ideas regarding the development in apparently healthy persons of a tuberculous effusion following trauma. It also tends to confirm clinically Paterson's[1] experimental observations as to the possible recovery of the pleura in guinea-pigs from a marked tuberculous involvement. Furthermore, the realization of the untoward results that may follow a wrench of the chest muscles, and the fact that a well established tuberculous effusion does not necessarily mean permanent disability, is important from a medicolegal standpoint. Finally, as tuberculous effusion following trauma is not uncommon, the detection of benign lesions of the pleura should receive careful consideration before accepting men for active military service because of their frequent exposure to injury and the possibility of reactivating lesions of this nature.

1. Paterson, R. C.: Pleural Reaction to Inoculation with Tubercle Bacilli in Vaccinated and Normal Guinea-Pigs, Am. Rev. Tuberc., 1917, **1**, 353.

OBSERVATIONS ON THREE CASES OF SCURVY

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The winter of 1916-1917 was passed in Melville Island by seventeen members of the Canadian Arctic Expedition. The expedition vessel, the *Polar Bear*, had failed to reach the island and we expected to live the winter entirely on fresh or dried musk-ox, reindeer, seal and bear meat. During the darkness of winter, however, our sleds got their steel shoeing worn out through a traveling party getting lost among some rocky hills where the sleds had to be dragged scores of miles, mainly over rock. This necessitated my sending a party in midwinter to Winter Harbor on the same island (where in the past several vessels have wintered) to see if they could find abandoned iron or steel and shoe the sleds for the spring work. Some of our people made another trip to the same place during the winter for a different purpose.

At Winter Harbor our men found, besides the metal and other repair materials wanted, several tons of food, kerosene, etc., cached there in 1910 by Captain Bernier, then in the Canadian government service. It was against my judgment, because of fear of scurvy and because of trouble in freighting the food, to use any considerable quantity of these edibles at our winter camp; but the men had an idea that the cached foods were much preferable to meat, and so I allowed them to eat all they wanted of these groceries while at Winter Harbor, though the amount hauled to the base camp and eaten there was less than three full meals per week—one full meal per week would be nearer the actual fact.

The main items of food found at Winter Harbor were flour, salt pork, butter, honey, sugar, pilot bread, preserved fruit in glass containers, pemmican, meat extract, dried fruit, rice, beans and peas. So far as we could judge, all of this food was in perfect condition except the pork and the sugar. Much of the brine had leaked out of the pork barrels, and as they were above the sugar, some of the brine had permeated most of the sugar so that the taste of it ranged from barely perceptible saltiness when used in tea to saltiness that made the sugar disagreeable no matter how used. There may have been a little sugar unaffected. The pemmican was salted to be palatable to the ordinary eater; the meat extract seemed to consist in considerable part of rock salt, some of the particles nearly the size of a split pea. There was also some salt which those of the men who cared for it used with the fresh meat.

On account of their greater portability, I decided to use the groceries found at Winter Harbor along with dried meat and fat on the sledge exploration of

the spring of 1917. The dried meat yields to no food in portability if used with the right amount of tallow, but as we had to feed some fifty dogs on it as well as the men we were short and should have had to use half dried or green meat in part had we not found the cached groceries. I did not fear scurvy from this use of the groceries, as I expected the men to eat mainly fresh meat all winter and we would have some seal meat on the ice in the spring. But I reckoned without the fact that some of our men had the belief that a varied diet is necessary for health. That phrase may be all right if properly understood; but certainly it is not only untrue as commonly understood by laymen but dangerous when applied on polar expeditions by the ordinary cook or even by that type of doctors who inherit their views of scurvy and antiscorbutics from Captain Cook's voyages. On this point witness the prevalent scurvy of the carefully groomed, dieted and medically supervised Scott expeditions and the absence of it on the (dietetically) apparently haphazard expeditions of Peary and Shackleton.

Of the five men who went to Winter Harbor in midwinter and there lived for several weeks mainly on the diet given above (the cached stores), three were afterward transferred to parties that lived in considerable part on fresh meat through February and March, and none of them ever contracted scurvy. The other two worked at freighting the groceries to the north coast of Melville Island and (I later learned) ate fresh meat rarely and as only one item of their meals. They also used salt extensively both as direct seasoning and in the form of beef tea from the meat extract. Both these got scurvy late in March or in April. No one else of the seventeen in Melville Island had any symptom of scurvy.

In March, our Melville Island party was joined by Lorne Knight, who had wintered with the *Polar Bear* in Victoria Island and whose diet had been mainly groceries of the ordinary kind, with a little fresh meat now and then, cooked in the ordinary white man's way.

After Knight joined our party, it was subdivided into two sections traveling one behind the other on the same trail, a few days apart. In the advance party were Aarnout Castel (in command), Karl Andersen, Lorne Knight, Harold Noice and one Eskimo; I learned later that the diet of this party had been mainly rice, pilot bread, pemmican, meat extract, sugar (salty), honey and a little fresh meat, cooked. The Eskimo, in addition, occasionally ate some raw fresh meat kept for dog feed. Castel ate the salty, cooked food, but he had previous to taking command of this party lived nearly exclusively on meat all winter, some of it eaten raw and little salt used. He and the Eskimo never acquired scurvy. The second party, that traveled behind, had a diet differing from the first in less use of salt and more of meat, both cooked and raw. No one in that section developed scurvy at any time.

Early in April, Andersen, when my party caught up to the advanced section, complained to me of having been gradually becoming more unwell for a week or two. The first symptom noted by him was dizziness on suddenly standing up, "laziness," gloom and irritability, showing itself in a tendency to condemnatory and uncalled for argumentativeness, proneness to becoming tired, and loosening of the teeth and a swelling and recession of the gums, with a dull, local ache in the gums or roots of the teeth. The appetite was normal as to both quantity and kind of food desired except that there was an increased aversion to frozen, raw meat—occasionally eaten by most of us in the form especially of frozen liver, a dish few persons can try several times without acquiring a liking. I told Andersen at once that the case looked like scurvy to me, but I added, "It can't be, for you have lived on fresh meat most of the winter." To this he replied, "No, sir, it can't be"—a dutiful reply, but not enlightening. So I decided the gum condition to be pyorrhea alveolaris, and we acted accordingly. I sent Andersen south with the first returning support party going toward our base at Cape Kellett, Banks Island.

I learned later that on the way south Andersen's symptoms continued to develop along the same lines, and he lost gradually in strength. On reaching Melville Island, the party failed to find food at an expected rendezvous, and for two or three days they had been on short rations, arriving without food at a place where several musk-oxen had been killed and one left behind unskinned and intended for dog feed. The coat of this animal is so warm that in the coldest weather of wipter, decay for several days proceeds on the basis of the body heat before being arrested by frost. This animal was therefore very "rotten," but the party was hungry and promptly devoured considerable of the frozen meat. All men who know the two methods prefer very high meat raw and frozen to the same meat cooked, and so our party ate most of their food raw for some days. Andersen told me the following summer that after three days of the raw meat he was completely over his abnormal gloom, felt eager to exert himself (as exemplified by a willingness to get up in the mornings, whereas he had formerly to "drag himself out of bed"), he could stand up suddenly without dizziness; and a soreness and stiffness of the joints, lately a prominent symptom, had disappeared. All this had occurred in three days. On a continued diet of meat, sometimes raw, sometimes cooked, but always fresh after the first four or five days, he continued to improve. His full strength came back in two weeks and his gums were firm and his teeth fast in a month. No salt was used, for they had run out of it.

In complete ignorance of the progress of Andersen's disease and of his recovery, my own party proceeded out on the moving sea ice and to a point 140 miles from land. Here scurvy, this time promptly recognized, laid hold of two of my three companions, Knight and Noice. What helped me to a quick decision as to what the trouble was was Noice's telling me that at times, when they were working separated from me, they had eaten practically no fresh meat for a considerable part of the winter, and had been eating everything heavily salted, partly (apparently) as a protest against what they considered my unreasonable instructions that meat should be the main item of diet and salt used sparingly, though both "white men's food" and salt had been found at Winter Harbor.

Noice, who had been on the Winter Harbor diet, and Knight, who had been on the ship's diet, had about the same symptoms, and these were the same as in Andersen's case. Noice's disease, however, was about a week farther advanced than Knight's. We at once started for land, for seals were scarce where we were, and fresh meat not available. I ceased using any salt or

salty food, and for the first week of the journey shoreward the symptoms remained about at a standstill. After that, however, the disease made progress again. The diet at this time was hard bread, rice, pea meal, honey, sugar and casein. What fat we had we used for the dogs.

Before reaching shore, Noice had become unable to walk and had to be hauled on the sleds; Knight was able to walk, but was getting weaker and more wretched. On landing on Ellef Ringnes Island, I at once went inland in search of caribou, the others traveling along the coast to keep abreast of me. On the second day, fourteen caribou were killed, and we pitched camp at the place.

At this time the teeth of both men were so loose that they could be plucked out with the fingers with no effort, and the gums were of such a cheeselike consistency that they were cut (with little bleeding) by wooden toothpicks about as easily as ordinary "American" cheese could be. Every joint was sore and all movements painful, and there was a gloom which, both men later agreed, could not have been caused by mere worry over their danger—we were 700 miles from our vessels and 600 from the nearest Eskimos. There was a marked craving for salt, in consequence of which I threw away a pound of salt we had with us and a little remaining meat extract, to prevent the men eating them surreptitiously. Appetite and digestion seemed normal, except that there were the abovementioned craving for salt and a pronounced distaste for raw meat—greater distaste than ordinarily. I now put them on this diet: In the morning a potful of meat was boiled, without salt, in enough water to supply drinking needs all day. The boiled meat was all consumed at breakfast, and when they were hungry enough (which was soon), raw frozen meat was eaten as often as desired the rest of the day. This meant that from half to two thirds of the meat was eaten raw. Marrow was also eaten raw.

In three days of this diet both men felt as cheerful as normal, and instead of the previous disinclination to stir there was a desire for activity surprising in view of the weakness from which they had not yet recovered. The pain in the joints was nearly gone, the craving for salt was markedly less, and the appetite for raw meat was much improved. In fourteen days from the first meal of meat, both men were able to walk, and we started south. In another two weeks their teeth were secure and the gums hard, though they did not, of course, regain their former apposition or contours.

All these men have been traveling all winter, having exercise that amounted to hard work, and fresh air night and day. None of them took a bath shortly before, during or immediately after their illness.

I have found among medical practitioners in Alaska that, with the prejudice in favor of fruit and vegetables as antiscorbutics inherited from Captain Cook's interesting observations, they have neglected meat as a preventive and curative agent in general throughout the territory. This led to many uncalled-for deaths while vegetables were as yet not readily obtainable. Fresh meat and fish always have been readily obtainable in most places.

Apart from some cases of scurvy that I dealt with in an article published last May,[1] I have seen in addition to the foregoing case only my own. I knew in advance I was likely to get scurvy during the winter of 1917-1918 if I continued on the diet forced on me by local conditions in the Mackenzie delta, where I was buying dogs, but I intended to counteract this by a prompt change to a meat or fish diet as soon as that task was done. But just then I was taken with typhoid, followed by pneumonia and pleurisy; and the diet approved and forced on me by those under whose charge I was while extremely ill was one by no means calculated to counteract scurvy—ordinary canned milk. But as this case, both in its cause and cure, differs markedly from the foregoing, I shall decide that space does not warrant my including a full account of it here.

1. Stefánsson, Vilhjálmur: Original Observations on Scurvy and My Opinion of the Medical Profession, Med. Rev. of Rev., 1918, 24, 257.

CONCLUSIONS

The present article, together with the one just mentioned, and considerable material gathered but not published, makes clear some conclusions and suggests others. While these may not be exactly new, it is to be judged by the confused nature of many medical works still in use for reference by physicians that further testimony would not be amiss.

It seems, then, that:

1. The strongest antiscorbutic qualities reside in certain fresh foods and diminish or disappear with storage by any of the common methods of preservation—canning, pickling, drying, etc. Fresh tomatoes may be valuable (I have never tried them), but canned tomatoes are of little or no value; fresh potatoes are good, but desiccated potatoes have shown little or no adequacy in our expedition when tried in my absence by believers in that form of diet; the juice just expressed from the fresh lime is said to be excellent, and I have no reason to doubt it; but bottled lime juice has never yet prevented scurvy. (I have just recently gathered interesting but scarcely needed testimony on this point from the Royal N. W. Mounted Police as to the scurvy winter of 1898-1899 at Dawson).

2. Cooking lessens or destroys the antiscorbutic value of most or all foods. Three average raw potatoes are commonly said by miners definitely to turn the tide of scurvy that has not reached an extreme stage; in our own expedition, boiled and roasted fresh bear meat did not relieve scurvy except with such slowness that it is debatable just what its effect was, if any. Our party and persons known to me have had the same experience with venison. I am of the opinion that most men, if left to their own inclinations and supplied with abundant cooked, fresh meat will avoid scurvy; cooked meat acts but slowly on an advanced case—the efficiency of it depending probably on the "rareness" of the cooked meat.

3. Meat and fish slightly or well advanced in the process of ordinary putrefaction seems to be as good an antiscorbutic as fresh flesh, or nearly so—witness Andersen's case above and the well-known fact that Eskimo tribes often live for several months in succession on putrid meat or fish without ever developing scurvy, while Eskimos working for white men or living on purchased provisions have it quite as readily as Europeans living on the same sort of diet.

4. Bodily cleanliness and ventilation are not by any facts known to me shown to have any bearing on the incidence or severity of scurvy. Here it is instructive to compare the filth and good health of Nansen and Johansen, as described in "Farthest North," with the

immaculate Scott expeditions with their numerous and serious scurvy cases.

5. Exercise does not prevent scurvy. I have been told, verbally, that the Scott party had it on the return from the pole, after months of continuous and strenuous work in the purest of pure air and in abundant, continuous sunshine; while Nansen and Johansen were in perfect health after a winter of the most nearly absolute inactivity ever known to me to have been described in a book of travel. These are not isolated but typical instances.

6. Salt, while not proved by anything I know to be a cause of scurvy, probably has some direct bearing on the history of the disease, for the following reasons: (*a*) Salt meats have long been recognized (and probably rightly) as predisposing to scurvy. (*b*) Many observers have commented on the hankering for salt by scurvy patients and on the disappearance of the longing as the cure proceeds.

Neither am I certain that salt did not cooperate with the heat in lessening the antiscorbutic value of the meat used by four of our eight scurvy patients. The only death and the only long and dragging recoveries were of men who ate their meat cooked and salted during or after cooking. This was at the winter camps which, while they belonged to our expedition, were not at the time under my personal observance, and I have the stories on hearsay.

7. It is a mistake to think (with most laymen and many physicians) that blackening the skin of the leg and softening of the calf muscles are among the early symptoms in nearly all cases. I have never seen either symptom, and in the cases I have heard of from reliable observers these symptoms, if they appeared, appeared late in the disease. Dizziness on standing up and bleeding from the gums are commonly among the earliest symptoms noted by the sick man himself, though it may be right that careful tests would disclose other symptoms earlier.

Harvard Club.

Birth Statistics.—According to an advance report of the Bureau of the Census, during the year 1916 in the recently established birth-registration area of the United States, with an estimated population of about 33,000,000, or 32 per cent. of the total population, the birth rate was 24.8 per thousand of population. This area comprises the six New England States, New York, Pennsylvania, Maryland, Michigan, Minnesota and the District of Columbia. The number of infants born alive was 818,893. The total number of deaths in the same area during the same period was 486,482, or 14.7 per thousand. The births, therefore, exceeded the deaths by 68 per cent. It is said that in all the states and all the cities, and in practically all the counties of the birth-registration area, the births exceeded the deaths, usually by considerable numbers. The deaths of infants of less than 1 year averaged 101 per thousand of living births. The birth rate for the entire registration area fell below that for 1915 by 0.1 per thousand of population, while the death rate exceeded that for 1915 by 0.7 per thousand. Without migration and with the birth and death rates remaining constant in the area to which they relate, the annual increase in population would be about 1 per cent. This rate compounded for a decade would give a decennial increase of about 10 per cent., or about half the rate of increase in the population as a whole between the last two censuses, which was 21 per cent. More births occurred to foreign-born white women than to native white women, amounting to as much as 62 per cent. in Connecticut. The death rate among infants of less than 1 year was practically the same in 1916 as in 1915—101 to 100 in the latter year. It ranged from 70 in Minnesota to 121 in Maryland.

PARALYSIS OF THE SIXTH CRANIAL NERVE ASSOCIATED WITH OTITIS MEDIA*

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In the routine practice of ophthalmology when patients present themselves with extra-ocular muscle paralyses which have developed suddenly, one is inclined to be content with inferring probable syphilitic etiology or some toxic cause, in case there is no history of traumatism. This habit of practice has led too often to the neglect of a careful search for a definite underlying cause and a definite pathologic lesion.

There are many conditions that may be responsible for paralysis or paresis of the third, fourth and sixth cranial nerves, and the whole subject is full of interest; but I wish at this time to call attention definitely to paralyses of a single nerve, namely, the abducens, which occur rarely but unmistakably in the course of purulent otitis media.

In 1904, Gradenigo[1] described a symptom complex which is now known as Gradenigo's syndrome or triad. It is characterized by (*a*) acute otitis media (with or without external suppuration, and with or without mastoid reaction); (*b*) isolated paralysis or paresis of the abducens nerve of the side corresponding to the diseased ear, and (*c*) intense and extraordinarily persistent pain localized, not as ordinarily in the mastoid region, but in the frontal, temporal and parietal regions of the same side.

The following case is a clean-cut example of the type:

M. W. S., aged 11, a thin and rapidly growing girl, called at my office, June 9, 1917. Two years before she had been a victim of mastoiditis on the left side and the mastoid was successfully operated on by Dr. John D. Richards. For the last six weeks she had had a running ear on the right side and was being treated conservatively by Dr. Philip D. Kerrison. The child was brought to me on account of double vision, which she overcame by closing the right eye, and very severe pain in the right side of the head, which was most intense over the right eye. Examination revealed complete paralysis of the right external rectus. Gradenigo's syndrome was clearly exemplified, and the condition was reported to Dr. Kerrison, who thought best to perform the mastoid operation. Two days after the patient visited me, the mastoid was cleaned out and it was found to be of the pneumatic type; but nothing unusual was found in spite of careful search for a lead to the sixth cranial nerve. The next day after operation there was decided improvement in the diplopia, and on the third day the diplopia and the pain had entirely disappeared, not to return again. I saw this patient last, Dec. 8, 1917, and at that time the muscles were in balance, and the tropometer showed normal rotations.

Recognition of the symptom group is found in otologic literature by the detailed reports of numerous cases which adhere more or less closely to the definite Gradenigo type; but case reports in eye literature are few, and there is surprisingly inadequate reference to the association of isolated sixth nerve paralysis with otitis in our textbooks and journals, and one is led to believe that the importance of this association has been

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Gradenigo: Tr. Cong. de Bordeaux, 1904.

operation. There was a double neuroretinitis of a rather mild type. There was a slight left facial paralysis, and the patient exhibited a most interesting condition in a double external rectus paralysis (complete on the right side, and partial on the left) without any involvement of the other muscles of the eye.

In Gradenigo's syndrome, pain in the areas supplied by the trigeminus is caused by involvement of the gasserian ganglion, and is described as neuralgic in type and very severe. There may be severe toothache, and there may be areas of hyperesthesia or of anesthesia. Herpes sometimes occurs, as in the cases of Grüber[12] and Wiener.[13] The muscles of mastication (masseter, temporal and external and internal pterygoid) supplied by the inferior maxillary branch of the trigeminus may manifest contractions[14] or paralyses.

ANATOMIC RELATIONS

In order to understand the probable mechanism of the association of unilateral otitis, sixth nerve paralysis, and pain in areas supplied by the fifth nerve, it is necessary for us to become intimate with the exceedingly interesting anatomy of the region at and about the apex of the petrous portion of the temporal bone. I hope that the accompanying illustrations, made directly from dry and wet specimens, will serve to clarify in a degree the important anatomic relations in connection with this study.

Fig. 2.—Temporal bone with pneumatic petrous pyramid. Inner table has been removed and a large cell is shown at apex directly under notch for sixth nerve. (Specimen loaned by Dr. Charles E. Perkins.)

The sixth (abducent, abducens) cranial nerve emerges from the brain at or near the lower border of the pons, and as a cord about a millimeter in diameter passes forward and upward in contact with the dura mater, which covers the basilar surface of the sphenoid bone. This basilar portion of the nerve measures approximately an inch in length. The nerve enters the cavernous sinus through a small perforation in the dura well below the posterior clinoid process and a little below the level of the tip of the petrous portion of the temporal bone, and passes forward through the whole length of the cavernous sinus, then through the sphenoidal fissure in its lower, nasal part near the ophthalmic vein, thus entering the orbit to supply the external rectus of the eyeball. The course of the sixth nerve in the cavernous sinus is different from that of the third and fourth, which supply the other muscles of the eyeball, in the length of its course and also in its position. The sixth nerve enters at the posterior wall and passes forward through the blood of the sinus supported by a delicate meshwork of fibrillated fascial tissue and sympathetic nerves, and lies in contact with the internal carotid artery, between it and the outer wall of the cavernous sinus. The third and fourth nerves enter the sinus considerably farther forward than the sixth, and lie in contact with the external wall in the anterior part of the sinus only, and thus are less within the sinus both as to length of course and as to position. The important intimacy with the blood stream of the cavernous sinus probably accounts for the especial vulnerability of the sixth nerve to sinus infection, toxemias from many forms of infection, and the many cases of sixth nerve paralysis from spinal anesthesia.

The important anatomic arrangement that definitely interests us here, however, is that at the apex of the petrous portion of the temporal bone; and in this arrangement the sixth is the only cranial nerve that figures. In following the course of the sixth nerve, after dissecting away the dura where the nerve penetrates it, one sees a layer of connective tissue. The abducens pierces this layer diagonally as it passes upward and forward, and for a distance of 2 or 3 mm. is enclosed by a covering of areolar connective tissue which resembles superficial fascia. Just in front of this the nerve trunk is found in contact with the periosteum at or near the apex of the petrous pyramid of the temporal bone, at which point it enters the cavernous sinus, usually just external to the junction of the inferior petrosal and cavernous sinuses. The abducens as a rule lies in contact with the external wall of the inferior petrosal sinus for a few millimeters before entering the cavernous sinus, but it may gain entrance to the cavernous sinus through the lumen of the inferior petrosal, by penetrating the external wall a little back of the junction of these two important sinuses. The superior petrosal sinus does not concern us

12. Grüber: Tr. Soc. autr. d'otol., Nov. 24, 1895.
13. Wiener: Ann. Otol., **19**, 694.
14. Ostmann: Arch. Ophth. (Graefe's), 1897, **43**, 1.

cate a deep-seated process, this in itself does not justify mastoid operation in every case, for recovery has occurred in a number of cases without mastoid operation and even without myringotomy.

ABSTRACT OF DISCUSSION

Dr. Walter H. Snyder, Toledo, Ohio: I have seen only one case of the condition described by the essayist. This was in a young woman who had had an acute otitis media, complicated by mastoiditis. She had been unconscious for about a week, or, at least, was in a deep stupor, when I first saw her. The day after her admission to the hospital she was operated on and died three days later without regaining full consciousness. The last day it was noted that she had a paralysis of the abducens on the side of the diseased mastoid. In this case the trauma of the operation did not cause the paralysis, as the tissues were very soft, no eburnation of the diseased bone had taken place, and it was easily removed with the hand curet, chiseling not being necessary. It is even possible that the operation did not go far enough, but the condition of the patient precluded any further investigation. We explored the tip especially and felt we had good drainage and that there was no necessity to enter the brain cavity, as apparently every part was draining and clean. Considering the anatomic relations, it is not surprising that this condition occurs; in fact, we would expect to find it much more common than it is, especially where the mastoid involvement has penetrated the inner table of the skull. It is, however, a comparatively rare condition. It is probable that many of the severe cases of mastoiditis exhibit this complication late in the disease, when the patient is moribund or lying with the eyes closed, hence is not noticed. The frequency with which this nerve is affected in basilar inflammations, especially in the syphilitic infections, would lead one to think that this complication would be more common in this rapidly spreading and especially destructive type of mastoid inflammation caused by *Streptococcus capsulatus*, of which the case I mention was an example.

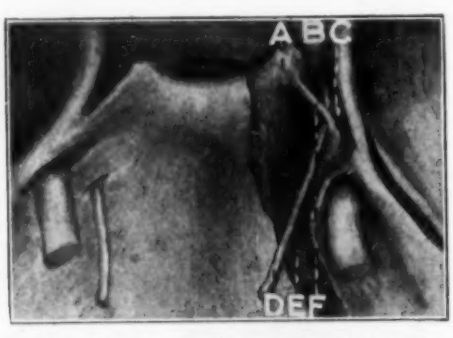

Fig. 4.—Further dissection to show sixth nerve entering cavernous sinus in relation to external wall of inferior petrosal sinus and in contact with apex of petrous pyramid. *A*, posterior clinoid process; *B*, carotid artery; *C*, apex of petrous pyramid; *D*, sixth nerve; *E*, inferior petrosal sinus; *F*, ligament.

Dr. H. H. Stark, El Paso, Texas: I recently had a similar case in a child 4 years old. The case was in the care of a general practitioner for at least three weeks after the primary attack of sore throat, which was followed in three weeks by a discharge from the right ear. In describing the case to me the physician said that it might have been scarlet fever; that he was unable to make a diagnosis. On coming to me the child had the syndrome described, pain with paralysis of the externus on the right side, the side on which the ear was involved. The ear was discharging freely, and a roentgenogram showed involvement of the cells. The temperature at the time was 102 F. The patient was placed in the hospital, and the fever subsided in two days. The discharge continued for two weeks and then stopped. No operative procedure was done. Complete recovery occurred within two weeks after the discharge had ceased. At the time the bacteriologic examination showed a streptococcus infection. I felt that the paralysis was one of toxemia, as we had had during this period of about six weeks several cases of infection of the same character, in which paralysis of the facial nerve occurred. One patient, a young man of 35, had a temporary hemiplegia lasting two weeks. I do not doubt Dr. Wheeler's deduction in these cases. I believe that they are due to a direct involvement of the sixth nerve from the misplaced cells.

Dr. John M. Wheeler, New York: If we will be on the lookout for this syndrome, we will find that this is not a rare condition. The prognosis is, on the whole, good. In some of these cases the paralysis is entirely cleared up a few days after operation; in some cases, within a few weeks or months; in some cases without operation, and in only a very few cases has the paralysis been permanent. The treatment lies entirely within the field of the ear surgeon, and the prognosis depends a great deal on his success in draining the mastoid cells.

ACQUIRED STRICTURE OF THE LOWER END OF THE URETER*

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Strictures of the ureter may be due to causes that are either congenital or acquired.

Acquired strictures of the ureter may be classified into those due to (1) trauma resulting from gunshot and stab wounds, postoperative conditions, labor, and passage of calculi; (2) inflammatory strictures, the result of infection. These inflammatory strictures may be classified into, (*a*) those that are the result of direct extension from periurethral infections, (*b*) those in which the infection has either ascended along the mucosa from the bladder, or has descended from the kidney, and (*c*) those resulting from focal infections. Strictures due to tuberculosis will not be considered in this discussion.

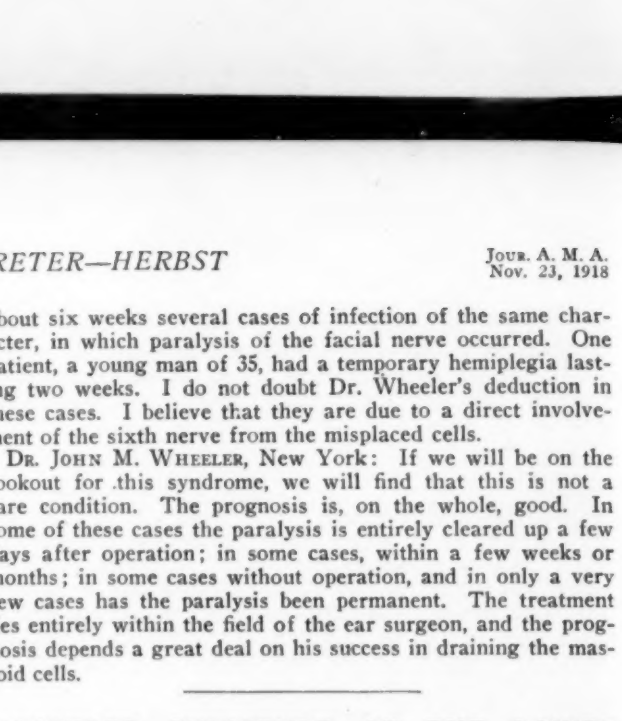


Fig. 1.—From plate made by Belfield showing relation of ureter to seminal vesicle. Vesicle filled with collargol solution. Roentgen-ray catheter in ureter.

Hunner,[1] in his excellent report of "One Hundred Cases of Ureteral Stricture," believes that focal infections play an important rôle in the etiology of ureteral

* Read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Hunner, G. L.: Bull. Johns Hopkins Hosp., 1918, **29**, 1.

rather generally overlooked by ophthalmologists. Knapp,[2] in 1908, reported a well-defined case:

E. B., girl, aged 5 years, a well developed and previously healthy child, after an attack of grip, suffered from headaches and pain in the right ear. This persisted for two weeks and was associated with unusually severe pain in the right half of the face and in the right eye. The gums on the right side of the mouth were so sore that she could not chew. The mother then noticed that the right eye turned in.

Feb. 29, 1908, the right eye was in a convergent position. There was no outward motility beyond the middle line. There was homonymous diplopia. Vision was normal. Sensibility was unchanged. There was no history nor sign of herpes. The field was normal. The right eardrum was red, verging to white, was slightly bulging, and there was no perforation. As there was no pain and the ear condition was on the way to recovery, no paracentesis was done. The child was kept quiet; a hot-water bag and calomel in small doses were prescribed.

March 17, the general condition was much better. The eardrum was nearly normal. The ocular paralysis was unchanged.

March 25, the right eye could be turned outward 20 degrees.

April 8, there was motility not quite to the external canthus; there was homonymous diplopia.

May 14, motility was normal. There was no diplopia. There was an intercurrent attack of headache and earache, but no return of the ocular paralysis.

June 11, the patient was well.

Other cases reported in eye literature are those of Terson,[3] Peyser,[4] Sauvineau,[5] Koellner,[6] Goetermann[7] and Myers.[8]

In 1908, L. Baldenweck,[9] intern on the ear service of the Lariboisiere Hospital, published a comprehensive essay on the alterations of the gasserian ganglion and paralysis of the sixth nerve in the course of inflammation of the middle ear, with case reports.

In 1910, Perkins[10] reported three cases that had been under his care for mastoiditis with paralysis of the sixth nerve, reports two cases from the practice of Dr. Alfred Wiener, and one that had been treated by Dr. S. J. Kopetsky. He covers the whole subject in an admirable way from the standpoint of the otologist, and gives a comprehensive bibliography.

Rarely paralysis of the sixth nerve is associated with external otitis. For this reason it may be of interest to report the following case:

2. Knapp, Arnold: Arch. Ophth., **38**, 552.
3. Terson: Ann. d'ocul., 1906, p. 503.
4. Peyser, A.: Berl. klin. Wchnschr., 1908, No. 28.
5. Sauvineau, C.: Ann. d'ocul., 1907, p. 321.
6. Koellner: Deutsch. med. Wchnschr., No. 7, p. 112.
7. Goetermann, C.: Deutsch. med. Wchnschr., No. 33, p. 552.
8. Myers, H. L.: Am. Jour. Ophth., **33**, 127.
9. Baldenweck, L.: Ann. d'ocul., 1908, p. 246.
10. Perkins: Ann. Otol., 1910, **19**, 692.

Feb. 5, 1918, T. L., man, aged 24, came to the eye clinic at the New York Eye and Ear Infirmary complaining of double vision and turning in of the left eye of one day's duration, and pain in the left auricular region. Ten days before he had injured the canal of his left ear with a hairpin, and furunculosis of the canal had developed. The furuncles had been incised five days before. Considerable edema of the canal remained, and there was almost complete paralysis of the left external rectus without involvement of the third, fourth, fifth, seventh or eighth cranial nerves. Examination revealed no evidence of middle ear inflammation. There was, however, mild retinitis of both eyes, with recent hemorrhages and markings which indicated old hemorrhages or exudates. The Wassermann and Noguchi tests of the blood were negative, but the urinalysis showed evidence of an old gonorrheal infection of the urethra. February 9, five days after the patient began to see double, he returned to the eye clinic with orthophoria in the primary position and binocular single vision in all fields. The swelling in the external auditory canal and the pain had disappeared.

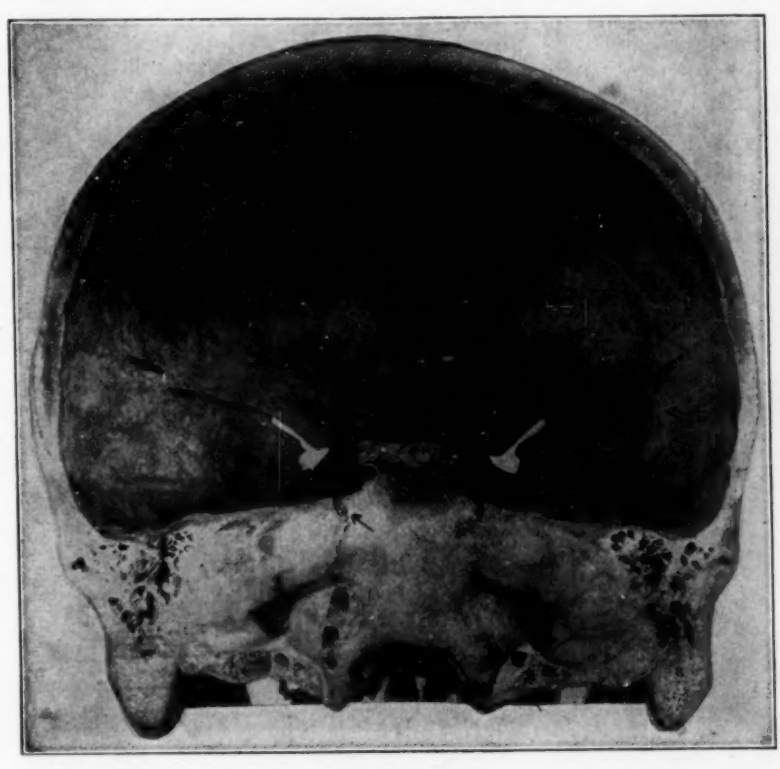


Fig. 1.—Vertical section through skull, posterior view. Arrows point to grooves at apexes of petrous portions of temporal bones, in which the sixth cranial nerves lie.

In this case it is possible, but not likely, that the sixth nerve paralysis was due to gonorrhea, or that some other constitutional condition was responsible for both the retinitis and the abducens paralysis. Even in such a case as this a transient edema, dependent on the furunculosis and involving the periosteum and fascial tissues at the apex of the petrous pyramid, may affect the sixth nerve in this position. This is the sort of case, however, to which the reflex theory of abducens paralysis best applies. This theory has been largely abandoned as unnecessary and somewhat fanciful.

The ocular paralysis is always seated in the external rectus of the side corresponding to the otitis. However, in a case reported by Rimini,[11] there were double otitis media and double external rectus paralysis. In another case, which I recently observed, there was one-sided mastoiditis with paralysis of both external rectus muscles.

C. T., girl, aged 10, Italian, was admitted to St. Mary's Free Hospital for Children, Feb. 12, 1918, with a history of purulent discharge from the left ear for four weeks, and deviation of the left eye for two weeks. The left mastoid had ruptured and pus had invaded the muscles of the neck. The day after admission, February 13, Dr. Edward D. Truesdell performed a mastoid operation. At the request of Dr. Colman W. Cutler, the consulting oculist to the hospital, I examined the patient, March 9, at which time Dr. Truesdell reported satisfactory improvement as a result of the mastoid

11. Rimini: Arch. internat. de laryng., **21**, 125.

in the same degree as the cavernous and the inferior petrosal, because it does not follow the superior border of the petrous pyramid to its apex, but curves forward to join the cavernous several millimeters anterior to the petrous apex.

The small area of contact of the abducens with the petrous bone at or near its tip is marked by a little groove, and just external to and behind the groove is a little spicule of bone; and on the border of the dorsum sellae of the sphenoid is another spicule. Between these two spicules of bone, and stretching closely over the sixth nerve, is a firm ligament, which sometimes undergoes partial or complete ossification, and to this ligament is attached the dura mater and fascial connective tissue layer, referred to above, which the abducens penetrates. Thus it will be seen that right at this point the anatomic arrangement is such that exudate or hemorrhage from an inflammatory process or from traumatism, or edema from any cause, would be likely to interfere with the function of the abducens by pressure or strangulation.

In order to understand the severe pain that occurs on the corresponding side of the head in these cases, it is important to have in mind the close proximity of the gasserian ganglion to the tip of the petrous bone. It lies in Meckel's dural cavity and rests in a depression on the anterosuperior aspect of the petrous pyramid at its tip, so that a process which would affect the sixth nerve at the tip would be likely also to affect the gasserian ganglion.

In ordinary otitis media it is entirely possible for the inflammatory process to extend to the apex of the petrous bone and to produce an edema or a local toxemia which will cripple the function of the sixth nerve at the vulnerable point in which we are especially interested in this study. Occasionally the petrous bone is strikingly pneumatic, and it is in such a bone that the purulent process would be most likely to invade the pyramid to the apex. Figure 2 illustrates a petrous bone of pneumatic character with a large cell directly under the groove for the lodgment of the sixth nerve, and is very convincing in this connection.

In order to reach a cell at the petrous tip there are many possible routes of invasion for infection. Perkins[15] mentions the following: (*a*) The infection may follow the sublabyrinthine route extending from the tympanum below the labyrinth and internal auditory meatus to the petrous tip. An interesting case in which the infection traveled this path is reported by Lombard.[16] Death occurred from meningitis. Necropsy revealed pus in the tip cells with very pneumatic bone. On the healthy side, the cells in the petrous tips were very large, and mercury poured into them emerged in the middle ear. (*b*) From the mastoid antrum the infection may extend through the subarcuate fossa or petromastoid canal, which passes inward beneath the superior semicircular canal, and reach a layer of cells sometimes lying above the internal auditory meatus and thus arrive at the petrous tip, (*c*) or this point may be arrived at by way of the carotid canal, access to which is obtained either by eroding the bone on the anterior tympanic wall, or through one of the caroticotympanic foramina which give passage to the carotid branches of the tympanic plexus, or (*d*) finally the infection has been found in some necropsies to be through a layer of cells extending along the eustachian tube, thus passing from the tympanum to the petrous tip.

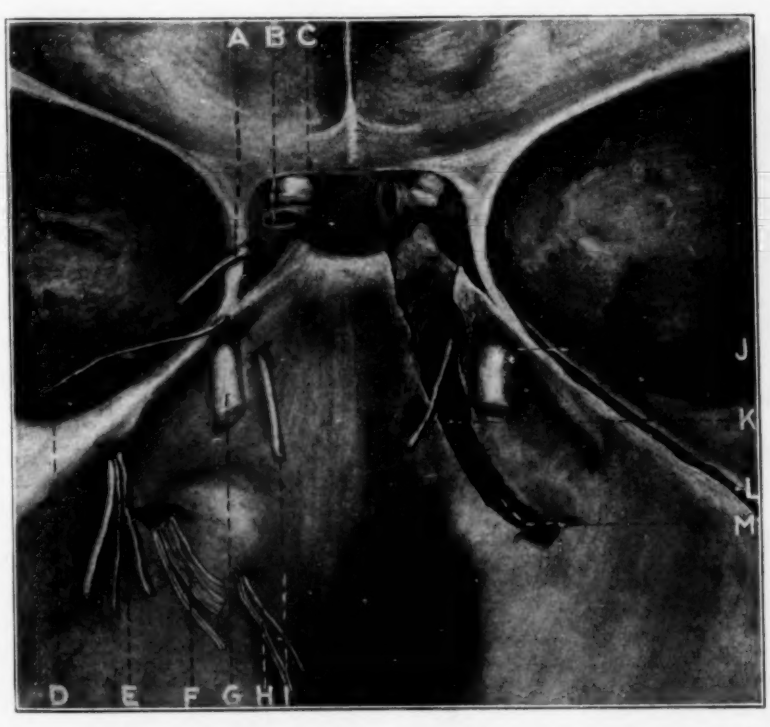


Fig. 3.—Drawing from wet specimen. The brain has been removed. On left side cranial nerves are seen entering dural openings. On right side dura has been removed to show sixth nerve entering connective tissue in posterior wall of cavernous sinus, a little below and behind apex of petrous pyramid. *A*, third nerve; *B*, carotid artery; *C*, second cranial (optic) nerve; *D*, fourth nerve; *E*, seventh and eighth nerves; *F*, ninth, tenth and eleventh nerves; *G*, fifth nerve; *H*, twelfth nerve; *I*, sixth nerve; *J*, fifth nerve entering Meckel's cavity for gasserian ganglion; *K*, sixth nerve entering connective tissue; dura has been removed; *L*, superior petrosal sinus; *M*, inferior petrosal sinus.

In some cases of mastoiditis, paralysis of the external rectus of the corresponding side has been observed after the mastoid operation has been performed. In some of such cases probably the chief causative factor has been traumatism attending the operation itself, and one would expect this to take place most often in cases in which ebony hard bone has necessitated the vigorous use of the mallet. It is not difficult to see how this might disturb the tissues at the apex of the petrous pyramid in such a way as to produce hemorrhage or edema that would result in pressure paralysis of the sixth nerve at this vulnerable point.

PROGNOSIS AND TREATMENT

The paralysis may clear up in a few days, and in a few cases has disappeared almost miraculously after mastoid operation, as in Perkins' second case and in my first case. But usually it persists for weeks or months, and there is possibility of permanent impairment of the nerve.

The treatment lies in the field of the otologist, and should be left to him, for recovery from the abducens paralysis depends on his success in treating the ear condition. Although Gradenigo's syndrome may indi-

15. Perkins: Ann. Otol., **19**, 692.

16. Lombard: Ann. d. mal. de l'oreille, 1906, **32**, 321.

strictures. He states that he is firmly convinced that "The majority of ureteral strictures, excluding those of tuberculous origin, should be classified as simple chronic strictures and that they have their origin in an infection carried to the walls of the ureter from some distant focus, such as diseased tonsils, sinuses, teeth

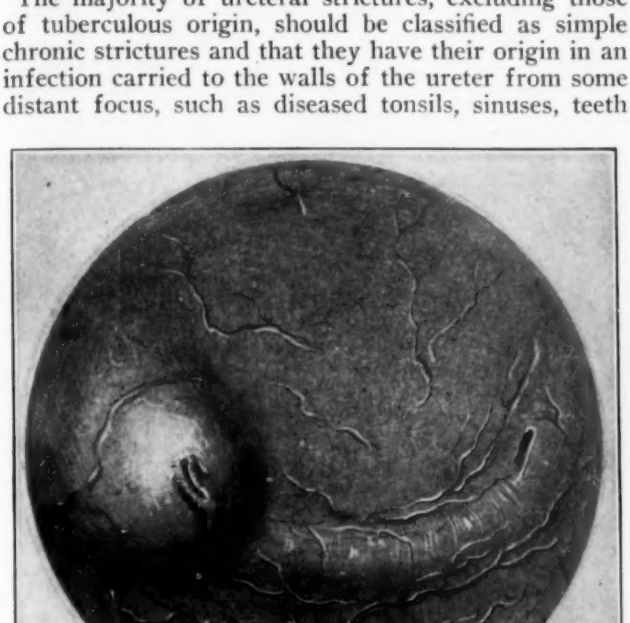


Fig. 2.—Cystoscopic view showing ureterocele of right ureter caused by stricture of lower end of ureter.

or the gastro-intestinal tract." His cases have to do entirely with women, and I can therefore understand why he omits the infection of the seminal vesicles among these foci.

Strictures resulting from infection of the seminal vesicles, either by direct extension from these organs, or possibly by organisms of focal origin, are the type to which I shall give chief consideration.

CONGENITAL ORIGIN OF STRICTURE

In the review of some of the earlier literature on the subject of stricture of the ureter, one is struck by the frequency of congenital origin of reported cases. In Bottomley's[2] extensive review we find that most of his reports are those of children, and are unquestionably due to congenital conditions. However, it is difficult to believe that some strictures, especially those showing no symptoms until middle or later life, are of congenital origin. As quoted by Moloney,[3] "How do you explain the delay in development in symptoms until adult life of obstruction of the ureter, when the cause is evidently congenital?" Barringer[4] in 1913, reporting a case of unilateral kidney calculus complicated by ureterocele of the opposite side, stated: "A ureterocele is a dilatation of the intravesicle portion of the ureter. This dilatation is dependent on a narrowing or stricture of the ureteral opening. It is probable that this strictured condition is always congenital, notwithstanding that such a condition has been attributed to the passage of calculi or blood clots through a ureter." Notwithstanding these earlier opinions of congenital origin of these strictures, one finds a gradual tendency toward the belief in the acquired origin of many of them found in middle and later life. Walther[5] believes that stricture of the ureter is not as rare as we have been led to believe, and states that it should be remembered that this condition may be a possible cause for some of the intractable cases of renal infection failing to respond to the usual treatment.

INFECTING ORGANISMS AS A FACTOR IN STRICTURE

The principal organisms that play the rôle of the exciting etiologic factors in the primary inflammatory stage of stricture of the lower end of the ureter are the colon bacillus, the pus coccus and the gonococcus. In the past it has been commonly believed that the gonococcus played a very small rôle in the production of strictures in this region, owing to the infrequency of infection of the bladder mucosa by this organism. However, I am satisfied that the gonococcus is responsible for no small number of strictures that occur in this location in the male, and that the preexisting infection of the ureteral wall occurs by direct extension from its closely approximated neighbor, the seminal vesicle. I shall later give briefly the history of a case which illustrates this point.

In the literature there are reported numerous cases of strictures of an inflammatory nature spreading to the ureter from adjacent organs. In 1902, Morgan[6] reported a case in which, after numerous operations on the urinary tract, he found the cause of the trouble to be due to an obstruction of the lower end of the ureter, caused by the binding of the ureter to the seminal vesicle, the result of an inflammatory process which had long existed in the vesicle. Belfield,[7] in a discussion on the subject of pus-tubes in the male,

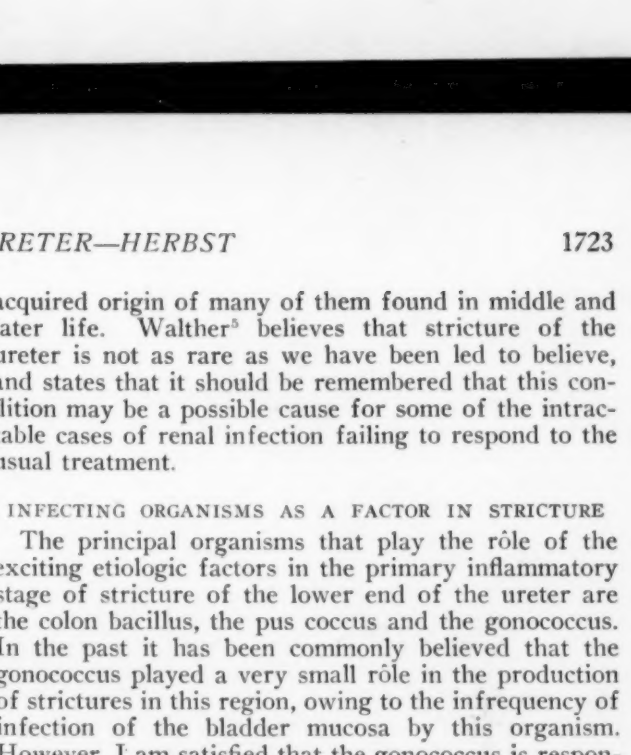


Fig. 3.—Indentation of ureterocele made by attempt to enter strictured extremity of ureter.

stated "The intimate relation between the juxtavesical ureter and the seminal duct seems, therefore, responsible for considerable kidney and ureter disease hitherto unexplored."

2. Bottomley: Ann. Surg., 1910, **52**, 997.
3. Moloney: Surg., Gynec. and Obst., 1917, **24**, III.
4. Barringer, B. S.: Interstate Med. Jour., 1913, **20**, 343.
5. Walther: New Orleans Med. and Surg. Jour., 1916, **69**, 115.
6. Morgan: Ann. of Surg., 1902, p. 528.
7. Belfield, W. T.: Tr. Am. Urol. Assn., 1909, **3**, 13.

McNeill[8] reported two cases of inflammatory strictures of the right ureter due to a pelvic abscess following ureterotomy of the left ureter. Frank,[9] in discussing the causes of ureteral obstruction, gave as a cause an extension of inflammation from infection of the uterus and its appendages. Again, we are all familiar with the condition found in the bladder, known as edema bullosum, commonly due to the gluing of a pus-tube to the bladder wall. If the above conditions are possible, it seems more than likely that an infection going on in the seminal vesicles may spread to the wall of the ureter.

The pathogenesis of these strictures is quite similar to that of strictures of the urethra. Let us here briefly consider the course of development of a stricture in the urethra.

First, we find the infecting organism (usually the gonococcus) destroying areas of the superficial mucosa, or what I choose to call the rubber coat of the urethra. The destruction of this mucosa is followed by infiltration of urine with its chlorid constituents. It is the chlorids which have largely to do with connective tissue proliferation and subsequent contraction of the involved area. In the development of strictures in the lower end of the ureter, we find an analogous condition, but reversed in its course. The infection spreads from the vesicle through the outer coats of the ureter, finally involving the lining mucosa with subsequent infiltration and connective tissue proliferation. For this reason some of the strictures become very dense, hard and fibrous, and take on the form of the well known impassible stricture of the urethra. The two cases reported are of this type.

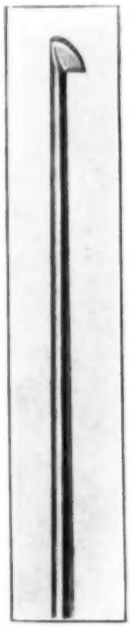


Fig. 4.—Hook-shaped knife used in cutting stricture.

REPORT OF CASES

Case 1.—M. F., aged 30, gave a history of gonorrhea contracted in 1910. The urethra discharged profusely for a number of months, during which time he developed an infection of his right epididymis, for which both the right epididymis and the testicle were removed. The urethral discharge, accompanied by a severe perineal pain, continued intermittently for five years, and in 1913 an "osteopathic surgeon" made a perineal incision of some kind which left the patient with a fistula opening into the bulbous urethra.

He was admitted to my clinic in August, 1915, and, on examination, the perineal fistula mentioned in the foregoing was found, also both seminal vesicles were greatly enlarged and hard. He complained of pubic pain, and for this reason a cystoscopic examination was made which revealed a normal bladder and both ureters perfectly patent. At this time I made a perineal section and closed the opening in the urethra. He was given massage and instillations, with a hope of clearing up the vesiculitis, but after a few weeks he failed to return for treatment. Two years later, in December, 1917, he returned to the clinic, still complaining of his old condition, also of severe pain in the lower right abdomen which radiated upward toward the region of the right kidney. His vesicles were found to be in about the same condition as when he left, for the relief of which I performed a bilateral vesiculotomy. At this time a cystoscopic examination was again made, and, to my surprise, I found a well marked ureterocele on the right side of the bladder, with the orifice of the right ureter located at its summit. Numerous attempts to enter this orifice with small ureteral catheters and bougies were not successful. The roentgenogram of the entire urinary tract was negative. From these findings, the diagnosis of acquired stricture and ureterocele of the right ureter was made. After several attempts, I succeeded in cutting the strictured orifice with a hook-shaped knife used through a Senn operating cystoscope. The small opening was further enlarged with scissors used through a Buerger operating cystoscope. The proximal end of the stricture has not been cut, but I am able to enter this with a small bougie, and expect to succeed in dilating this part of the stricture. I report this case because it illustrates that this stricture evidently developed between the two cystoscopic examinations, between which a period of two years elapsed, also that the stricture had its origin in the violent and persistent infection of the seminal vesicles.

The most common and pronounced symptom is pain, which very frequently is that of a typical renal colic, as illustrated by the following case:

Case 2.—W. G., aged 55, single, stated that some years before he had developed a gonococcus infection which persisted for more than a year and which was accompanied by bladder symptoms, that is, frequent and imperative urination. He consulted me in September, 1913, complaining of a periodic colic-like pain in the back, which was referred to the region of the right kidney. These attacks of pain had come on about every week or two during the previous six months. They were very severe in character, requiring morphin to relieve them. I had the opportunity of seeing him in two of these attacks, and can state that they were typical of renal colic. Examination showed the prostate and seminal vesicles enlarged, the expressed specimen from which contained many pus cells. Cystoscopic examination revealed a normal bladder mucosa. In attempting to catheterize the ureters, I found a complete obstruction of the left ureter, just within the orifice. The right side was found perfectly patent. A roentgenogram of the entire urinary tract showed a small shadow which might be located near the lower end of the left ureter. After numerous unsuccessful attempts to enter the left ureter with very small ureteral bougies, a diagnosis was made of stricture of the lower end of the left ureter. Several attempts to cut the stricture through an operating cystoscope failed. A suprapubic cystotomy was then made and a small, hook-shaped ureteral knife was forced through the stricture and, by its withdrawal, the entire narrowed portion of the ureter was cut through. A small ureteral curet brought out some fine pieces of gravel which had collected at the proximal end of the stricture, and which had probably been responsible for the shadow seen in the roentgenogram. A No. 8 ureteral catheter was now readily admitted. This patient has been seen and cystoscoped a number of times during the last four years, and the stricture does not show any tendency to recur, nor has he been troubled again by the attacks of colic-like pain.

ETIOLOGY AND TREATMENT

The spasmodic character of these attacks is likely due to complete obstruction of an already very narrow outlet of the ureter. This obstruction may be due to the admission of a pus plug, or a small piece of gravel, into the stricture area, or may be due to the same cause as is found in acute retention of the urine caused by stricture of the urethra. Under these circumstances, the pressure of the urine from behind produces an edema of a canal, already very much narrowed with resulting temporary complete obstruction. The attack promptly subsides on the passage of the obstructing foreign body, or the disappearance of the edema. The pain may be of a constant, dully aching character, referred to either side of the suprapubic region, or not infrequently radiating along the course of the ureter toward the kidney. I have seen

8. McNeill: New York Med. Jour., 1917, **106**, 786.
9. Frank: Interstate Med. Jour., 1914, **21**, 1209.

cases of seminal vesiculitis in which the most prominent symptom was this radiating pain along the ureter, and, on catheterizing the ureter, have found what I thought at the time to be a small meatus. However, the pain disappeared after a number of dilatations of the orifice of the ureter. I think it is possible that these were cases in which there was an incipient stricture of the lower end of the ureter. I am also of the belief that in some of my cases of pyelitis which I thought I cured by pelvic lavage, the patient derived more benefit from the passage of the ureteral catheter and the dilatation of a stricture of large caliber, than from the lavage. In such cases, the urine may be perfectly negative during the attack of colic, and may show pus after its subsidence, the pus coming from the infected kidney pelvis after the stricture allows passage of urine from the affected side.

The patients may also have chills, fever, and gastrointestinal symptoms, as one observes in an acute obstruction of the ureter from other causes.

The differential diagnosis of these strictures from the symptoms is necessarily difficult. However, the cystoscope, the ureteral catheter, the olive-tipped bougie, and the roentgen ray with pyelography are absolutely essential, and will usually help one in clearing up these cases. The olive-tipped bougie is extremely valuable in the diagnosis of stricture of large caliber. When the stricture is very small, or even impassible, the ordinary ureteral catheter will clearly define the condition. In the latter type, we frequently find a decided bulging of the end of the ureter into the bladder—the condition known as ureterocele.

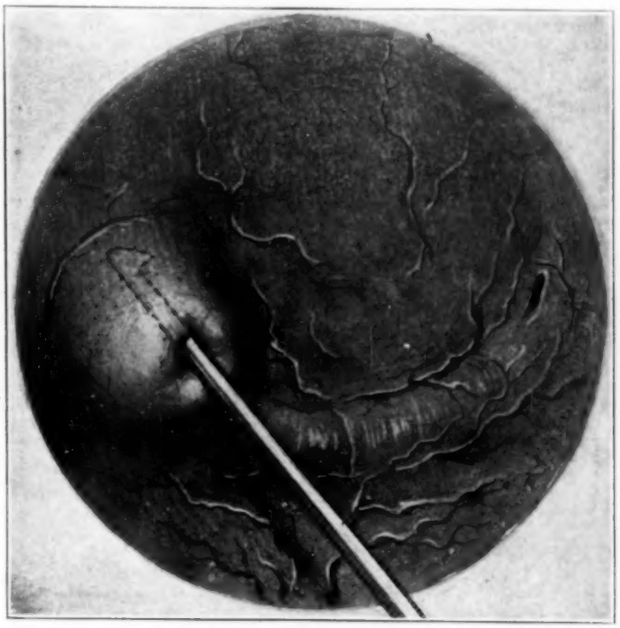


Fig. 5.—Introduction of hook-shaped knife into the strictured area.

IMPORTANCE OF EARLY DIAGNOSIS

Too much importance cannot be placed on the early diagnosis of this condition, since we know that as the stricture becomes more organized, and contracts, the changes in the kidney become more serious.

Strictures of large caliber can usually be readily dilated by means of catheters, bougies and ureteral dilators. In those cases in which, on repeated attempts, we are not able to enter the strictured area, a cutting operation, either through an operating cystoscope or through a suprapubic opening, is indicated. Where this is impossible reimplantation of the ureter, or even nephrectomy, may be necessary. A hook-shaped knife, used in the two cases reported in this paper, has proved very useful in the treatment of those cases requiring a cutting operation, either through the cystoscope or through the opened bladder. To prevent subsequent contraction and recurrence, it is well to practice dilatation for some time following the cutting operation, as is commonly done in operations on the urethra. In cases in which the seminal vesicles are still the seat of infection, treatment must also be directed to these organs, either by stripping, or by one of the operative measures, such as vasotomy or vesiculotomy.

The prognosis necessarily depends on the amount of destruction produced in the kidney. In the cases in which serious changes have occurred in this organ, especially those of long standing, little benefit may be expected from either dilatation or cutting of the strictured area. Therefore, I again call attention to the importance of an early diagnosis.

SUMMARY

1. Strictures of the lower end of the ureter occur more frequently than is commonly believed, and not a few of them are of the inflammatory acquired type.
2. Strictures of this part of the ureter may result from infection spreading from an adjacent seminal vesicle.
3. Strictures in this locality play an important rôle as the etiologic factor in some of the obscure infections of the kidney.
4. The importance of early diagnosis and treatment, before serious changes occur in the kidney, cannot be too strongly emphasized.

ABSTRACT OF DISCUSSION

Dr. V. D. Lespinasse, Chicago: This paper brings up the question of stricture of the ureter. There is no question that slight disturbances of the ureteral lumen will produce marked symptoms and marked trouble. My observation is that there is a tendency to diagnose stricture of the ureter when there is no stricture there. If the catheter goes in a centimeter or two and cannot go any farther, the inference drawn by many is that a stricture is present. This is not so. When the catheter does not go clear to the kidney the diagnosis of ureteral stricture from this fact is not permissible. The diagnosis of stricture from the use of the catheter is quite difficult. According to Hunter's teachings, stricture of the ureter is an extremely common condition. Strictures of the ureter, particularly in the lower end of the ureter, are, at least in many cases, due to infections of the vesicles. The perivesiculitis causes a periureteritis with infiltration and loss of elasticity in the ureteral walls. Whether such a lesion should be called a stricture is doubtful, although it really is a stricture in the strict anatomic sense; but it may be simply an infiltration of the wall of the ureter, the elasticity of which is interfered with, with no real narrowing, except that in the strict sense of the term it has lost its elasticity. Of course, the treatment there is to remove the infection from the vesicle, if possible, and dilate the ureter by the use of a sound or bougie.

Dr. William F. Braasch, Rochester, Minn.: I question very much the possibility of making a diagnosis of stricture of the ureter by means of the ureteral catheter alone. Physiologic and anatomic changes in the ureter may give a sense of obstruction to a catheter which may lead us to believe we are dealing with a stricture. I have frequently met with such obstruction where no dilatation of the ureter above the apparent obstruction could be demonstrated in the ureterogram. We also must recognize the fact that some ureters are of much

larger caliber than others. I have frequently observed definite ureteral obstruction in normal individuals who had no abdominal pain nor any other evidence of ureteral involvement where it was impossible to introduce a No. 6 catheter up to the renal pelvis. There are so many other causes for obstruction to the ureteral catheter that it is quite impossible to make a diagnosis of stricture of the ureter because of such obstruction alone.

Although strictures of the ureter unquestionably do exist, I am certain that they do not occur as frequently as some observers would lead us to believe. I am under the impression that postmortem pathology does not bear out the assumption of the frequency of the stricture of the ureter. When found in conjunction with renal infection, it is consequent to such infection and not an etiologic factor. Actual stricture of the ureter cannot be cured by simply passing a catheter or by a single dilatation. On the contrary, it usually requires repeated dilatation at regular intervals as long as the patient lives.

Dr. John R. Caulk, St. Louis: There are two types of ureteral stricture, one in which there is a stricture and the other in which there is not, the latter group predominating. I am in hearty accord with what Dr. Braasch said. I have been impressed with the infrequency of true strictures of the ureter from intra-ureteral causes aside from tuberculosis and an occasional stone impaction. Strictures are not infrequently due to implications in a neighboring inflammation, such as seminal vesicle and pelvic inflammatory diseases. It has been my experience that the most important type of stricture of the ureter and the one which has caused so much confusion and, I believe, false reports, is the spasmodic stricture, or rather the spasmodic contraction of the ureter in the vicinity of an outside inflammation, particularly the seminal vesicles, and it is this condition that I wish to bring to your attention as being responsible for many of the so-called strictures. With the ureter catheter or with bougies it is impossible for any one to differentiate between them in all cases. I want to impress on you the value of large doses of atropin as a means of diagnosis between stricture and spasmodic stricture. Atropin will help the patient out of trouble very often. More attention must be paid to the tissues around the ureter and to ureteral spasm.

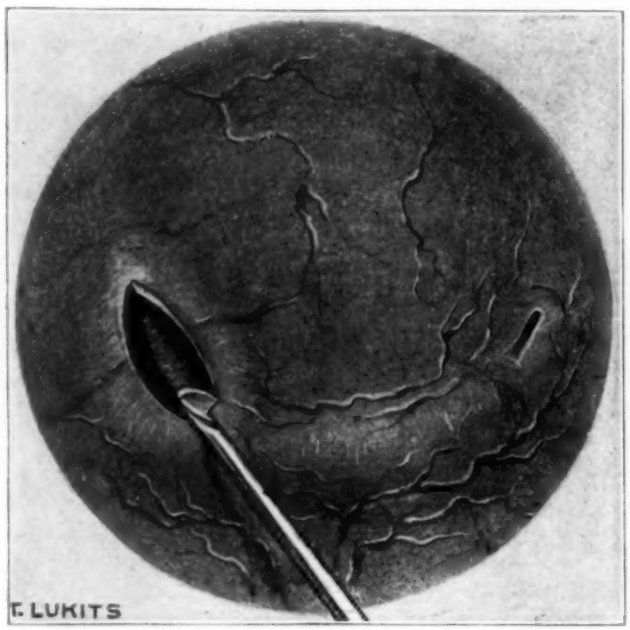


Fig. 6.—Incision of strictured area produced by withdrawal of hook-shaped knife.

Dr. Granville MacGowan, Los Angeles: Strictures occur in the ureter just as in any other tube lined with a mucous membrane, arising from influences internal or external to the ureter itself, and some are prenatal. In my experience, strictures of the ureter are usually due to pelvic troubles that produce adhesions followed by contractions in the ureter itself. Acute appendicitis sometimes produces obstructions of the ureter and causes renal colic, but that passes away along with the removal of the appendix or the subsidence of the attack. Chronic appendicitis, in which the appendix becomes bound down in the pelvis in a matted mass of inflammatory tissue, involving the ureter, sometimes will obstruct the ureter, causing Dietl's crises. I have seen two cases of this kind. There is no valid reason why stricture of the ureter should not follow the passage of a stone, although we know it does not do so usually, yet occasionally the injury must be sufficient to cause contracture especially in persons who have the tendency to keloidal degeneration.

Atropin had been used to relax these attacks. Spinal anesthesia alone will relax a patient and allow the differential diagnosis between stricture of the ureter and muscular spasm of its walls. I have three specimens of ureters which show very distinctly strictures within the bladder wall. In one of them, during life, I could pass a catheter very readily; another I never did get a catheter through. The third is merely a postmortem specimen. There can be no just contention that this disease does not exist, but it is not nearly as frequent an occurrence as urologists think it is.

Dr. William M. Spitzer, Denver: I do not know whether these strictures are true strictures or not. I have met them very frequently in cases of seminal vesiculitis. I know that I cannot pass a catheter more than 1½ c.c. That may be due to outside pressure, or it may be due to stricture, but it is very common, indeed.

Dr. Gustav Kolischer, Chicago: Stricture is caused by the narrowing of the ureteral lumen, due to permanent pathologic changes in its walls. Compression is a temporary condition, due to extraneous causes. There is no doubt that such a condition will form an obstruction to the catheter. You will very rarely find true stricture of the ureter unless after infection. A simple obstruction to passing the catheter does not prove the presence of a true stricture. It very often happens after a gynecologic operation that either on one side or the other you cannot pass a catheter, but that may be due to distortion of the ureter and not to stricture. There is only one way of proving that a stricture exists, and that is by passing an olive-tipped bougie or raying with a contrast fluid. If repeated examinations show the same result, then we have to deal with a permanent condition and can make a diagnosis of stricture.

I have always been very doubtful, just as Dr. Braasch is, as to whether it is possible to cure a ureteral stricture by inserting bougies. I cannot imagine any circumstances in which a ureteral bougie could overcome the resistance of a real ureteral stricture. If this bougie was sufficiently hard and resistant to stretch the cicatricial wall I would be afraid to use it, because I would be afraid of perforating the wall. I believe, however, that it is possible occasionally to clear up pyelitis by regular catheterization. I agree with Dr. Braasch that we find a number of normal individuals in whom you are hardly able to enter the ureteral mouth at all, but that is not due to stricture, but to a congenital narrowing of the opening.

The rather energetic treatment recommended by Dr. Herbst in some of his cases, that is, an incision high up into the vesical wall, is rather risky. Real strictures of the ureter may occur after extensive gynecologic operations leading to extensive denudation of the ureter and followed by ureteritis, as proved by postmortems when those patients died from subsequent pyonephrosis.

Dr. J. L. Boogher, St. Louis: I believe that these strictures indicate a pathologic change in the structure. That can take place from mere pressure; there must be a formation of fibrous tissue in the structures which is brought about by the production of cells in the tissues which cause the lessening of the blood pressure from the normal mucous membrane. The necessity on the part of nature for the production of this tissue is either because of infections or from the pressure of the mucous membranes. Without the develop-

ment of the spindle-shaped cell or cells of lessened blood requirements strictures cannot form. Spasmodic strictures may occur, but they cannot be called strictures; they are simply an element which produces a temporary tightening of the lumen of the vesicle; but when we have the pressure of foreign tissue brought into any sort of a channel, I do not see how the passage of any sound can change the character of that tissue. The cause of the production of the peculiar tissue which is there must be discovered and removed. I do not see why a catheter would not cause some irritation and add to the stricture more than it would detract from it.

DR. BERNARD ERDMAN, Indianapolis: With reference to Dr. Braasch's remark about the normal narrowing of the ureter, it seems to me that the meatus of the ureter bears the same relation to the ureter that the meatus of the urethra does to the urethra. It is probably the narrowest portion of the entire canal. Another point that ought to be brought out is this: All ureters do not enter the bladder in the same manner. It is sometimes a very difficult problem to pass a ureter catheter in an individual in whom I absolutely suspect no stricture at all. I would like to take issue with Dr. Boogher about the spindle cells, and I think we have a good deal of trouble with round-cell infiltration, too.

DR. J. DELLINGER BARNEY, Boston: I would like to get an expression of opinion as to the use of papaverin, mentioned by Dr. MacGowan and others. I have tried it in several cases, and have had about as good results by simply attempting to pass a catheter.

DR. WILLIAM F. BRAASCH, Rochester, Minn.: We have used papaverin in the endeavor to remove stone from the ureter in twenty-five or thirty patients. I am under the impression that papaverin was not the greatest factor in the majority of instances in which we were successful. When a stone can be removed by cystoscopic methods, manipulation by the ureteral catheter so as to shift the stone's position is probably the most important factor. Since this is usually done when introducing papaverin, the latter has been given greater credit than it deserves.

DR. ROBERT H. HERBST, Chicago: I agree with the statement made by Dr. Braasch and Dr. Caulk, that the ureteral catheter is of very little value in the diagnosis of stricture of the ureter. There are many conditions which may cause the interruption of the catheter, both into and along the ureter, and one must be very cautious in making the diagnosis in this way without other findings. This is also true of the olive-tip bougie. When one is able to enter the narrowed portion with a catheter, the injection of a contrast fluid and the roentgen ray are of great value in making the diagnosis. However, this is not possible when the obstruction will not admit even the smallest size catheter. The two cases reported were both of the impassable type.

The cases of strictures reported in this paper were of the type which are found at the extreme lower end of the ureter and which have been preceded by severe inflammatory changes in the seminal vesicles. I believe that these obstructions are due to inflammatory changes in the wall of the ureter and not adhesions binding the ureter to the seminal vesicles. The wall of the ureter is too rigid to be compressed in this way. In opening the lower end of the ureter we must keep in mind the danger of making the incision too long. The ureter is inserted into the wall of the bladder for a distance of 2.5 c.c., and the incision must be kept within this limit.

The Microscope.—The first compound microscope was probably invented by the Middleburg lens grinders, Johann and Zacharias Jansen, about 1590.

THE RATIONAL ETIOLOGY AND SATISFACTORY TREATMENT OF DACRYOCYSTITIS *

W. R. THOMPSON, M.D.
FORT WORTH, TEXAS

The man who first suggested a lacrimal probe was thinking along scientific lines. By its use he hoped to remove the obstruction from the nasal duct, and restore its normal function. His disappointment came, however, when he learned, from repeated efforts on patients in whom the probe could be passed through the duct into the nose, that in most instances the tendency to an immediate closure was so great that the hope of draining the sac of its infectious contents had to be abandoned. The failure of the probe to give relief by drainage suggested the use of the style, which proved to be unscientific in principle and unsatisfactory in results.

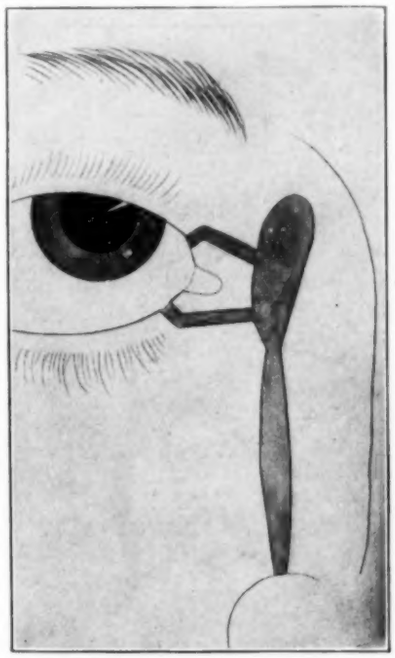


Fig. 1.—Normal sac and nasal duct.

For several years all contributors to this subject seem to have given up the idea of drainage or the restoration of the normal function of the lacrimal sac and nasal duct, and instead have directed their energies to sac destruction or removal, or direct drainage into the nose.

It is not my purpose to criticize the different methods of treatment. In my opinion, however, all methods depending for their success on the complete destruction of the function of the sac and duct are more or less faulty.

In the absence of adequate postmortem information, it is impossible to determine the exact cause of nontraumatic stricture of the nasal duct. Our textbooks say that inflammation of the nasal mucous membrane and obstructions resulting from the enlargement of the inferior turbinates, nasal polypi, etc., are among the most common causes. There appear to be some very good anatomic reasons for the belief that other and possibly more rational causes exist.

The nasal end of the nasal duct is by far the best protected of all openings entering the nasal cavity. Nature evidently realized the importance of having this duct perform its function properly at all times; to that end she displayed great wisdom in the construction and location of the inferior turbinates. The duct, as all know, enters the nasal cavity with rather an expanded orifice, immediately beneath the anterior end of the inferior turbinate. The upper border of this bone is thin and is connected to various bones along the outer wall of the nose; the lower border is free, thick, and cellular in structure. The outer surface, looking toward the opening of the duct, is concave and assists in the formation of a large and well ventilated cavity — the inferior meatus, into which the duct opens. When this bone becomes hypertrophied, the enlargement takes place on the inner or

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

convex surface and on its lower border and does not encroach on the orifice of the duct. When a nasal polyp develops, it is generally above and posterior to the anterior end of the inferior turbinate, and does not reach the neighborhood of the orifice of the duct.

For the past few years I have been observing nasal cases generally, with a view to ascertaining how frequently the duct is prevented from functioning by pressure on its nasal orifice. I find it surprising what distortion of the anterior nares, from deflection of the cartilaginous septum and extreme hypertrophy or polypoid degeneration of the inferior turbinates, can exist without affecting in the least the function of the nasal duct. Certainly there may be cases, but so far I have not seen one, with or without stricture, in which the orifice of the duct did not appear to be surrounded by open space.

Infectious organisms might find their way through the duct from the nasal cavity, but the likelihood is not very great. In case they should so enter and cause trouble, the infection would probably be acute.

It is the function of the lacrimal canals, sac and nasal duct to convey not only liquids to the nasal cavity from the conjunctival sac, but also such solid matter as passes through the canaliculi. The nasal duct is lined with mucous membrane, continuous with the conjunctiva, which contains numerous folds resembling valves. It not only seems possible, but it is very probable that some of these foreign bodies may lodge and become fixed in these folds, since this mucous membrane does not possess ciliated epithelium, nor is the flow through the duct of sufficient force to dislodge them. It requires only a short time for a fixed foreign body to create irritation and erosion of the surrounding structures, as in the case of a foreign body in the nares. When sufficient time has elapsed, these foreign bodies increase in size by the deposition of salts from the tears and serum.

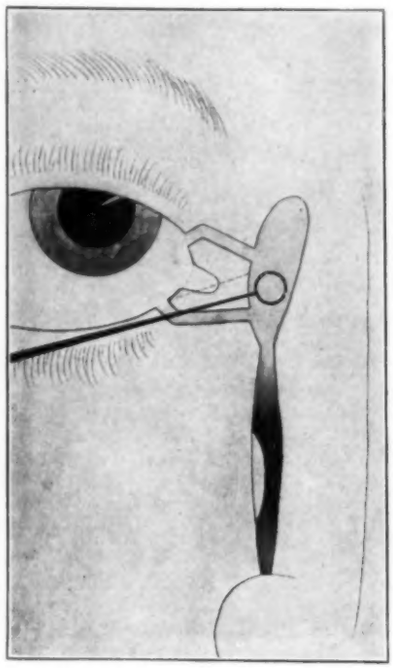


Fig. 2.—Extent to which canaliculus should be slit.

The clinical history of stricture of the nasal duct, from its earliest manifestations (the stage of epiphora) to the time of complete closure with extensive pus formation or mucocele, is exactly what would be expected as the result of the presence of a foreign body in the duct, with its irresistible tendencies to inflammation, ulceration and accretion.

It is generally believed that dacryocystitis is always preceded by obstruction of the nasal duct. Based on my theory of foreign matter as the original cause of this obstruction, the failure of the probe to give relief is explained, as its function is to dilate, not to remove, the stricture.

After becoming weary of repeated dilations followed by practically no improvement, and yet unwilling to give up hope for restoration of the normal function of the sac and duct and to join the band of sac exterminators, I was impressed with the idea of removing rather than dilating the stricture. The plan seemed so feasible, even before it was undertaken, that I was surprised it had not been done before. The small, sharp, flexible wire ear-curets (Buck's) suggested themselves as the best instruments with which to scale off the semisolid deposit on the walls of the duct, as well as to remove the granulations and other débris from the duct and sac. The technic is as follows:

In children and nervous or sensitive adults, a general anesthetic should be administered. All others are given a hypodermic of morphin, followed in thirty minutes by instillation of some 5 per cent. cocain solution in the eye and an injection above, below, and to the nasal side of the lacrimal sac of a 0.5 per cent. cocain solution.

The canaliculus is slit in the usual way, care being taken to make the opening in the sac sufficiently large to admit easily the largest size curet. Some 1 per cent. cocain solution is injected into the sac with an Anel syringe.

If the case is of long standing, with pus or mucocele, the inner walls of the sac should be curetted with the largest size curet. The sharp edge should be indicated by a mark on the handle, to be located easily at all times. If the sac is free from infection, it should not be molested. The smallest size curet should then be passed into the duct, the same as the probe. When the obstruction is reached, there should be no force employed to push through, but gentle pressure made in connection with an auger-like motion until the curet finds its way into the nasal cavity. This instrument should be manipulated until it passes easily through the stricture and the entire duct. The next larger size is to be used in the same manner, and so on, until a curet practically the size of the duct will pass easily into the nose, and all sensation of roughness at the site of the stricture has been removed.

It is reasonable to suppose, in long standing cases, with pus and mucus in the sac and duct, that there is a tendency to the formation of granulations. In view of the importance of leaving the sac and duct as free as possible from infection, a skeleton burr has been improvised to be used first in the sac, by rubbing carefully its walls, and then passed repeatedly through the duct until all granulations have been destroyed. With this instrument a 25 per cent. solution of iodin is thoroughly applied to the inner walls of the sac and duct.

If the obstruction has been completely removed and all infection destroyed, the patient will recover without further treatment. If a portion of the deposit on the walls of the duct has been left, it will naturally have a tendency to increase in size; if a focus of infection remains in the sac or duct, it will manifest itself. In either case it will be necessary to repeat the operation.

In my opinion this treatment is applicable to all cases of dacryocystitis except the lacrimal abscess. I would not advise it in recent cases of epiphora until simpler methods have failed. I believe that in every instance in which it is proper to use a probe, the curet

can be employed and in a very large percentage of cases the trouble relieved in a few days.

My experience with this method extends over a period of two and one-half years, during which time cases of epiphora, mucocele and purulent dacryocystitis have been cured and the function of the sac and duct restored. Since most of these patients get well with one operation and no after-treatment, it is very difficult to get accurate statistics, as they all return home immediately, and some of them live in remote localities. Fortunately I have been able to follow a variety of cases, which prove beyond question the value of the method. The following cases are given as illustration:

REPORT OF CASES

CASE 1.—The first person to be operated on by this method was a man, aged 65. He gave a history of having had a purulent discharge from the sac for twenty years. I had treated him with probes sixteen years before, with no success. The sac was considerably dilated, as indicated by a decided depression after he expelled the pus, which he did several times daily. He was well in ten days, kept under observation for two years, and has had no further sac infection, overflow of tears, or lacrimal conjunctivitis.

CASE 2.—A woman had purulent dacryocystitis of long standing, and gave a history of two lacrimal abscesses. A fistulous opening into the sac existed at the time of operation. When seen, five weeks later, she said that she was well a week after the operation. Cocain passed readily into the nose and mouth from the conjunctival sac.

CASE 3.—A man had mucocele of long standing, with severe lacrimal conjunctivitis. He was well in a week after operation. He has been seen monthly for six months, and has no evidence of his old trouble. Cocain passes through the nasal duct into the nose and mouth.

CASE 4.—A woman with epiphora was not benefited by three months of ordinary treatment. She was relieved at once by operation, and has been under observation for seven months without recurrence.

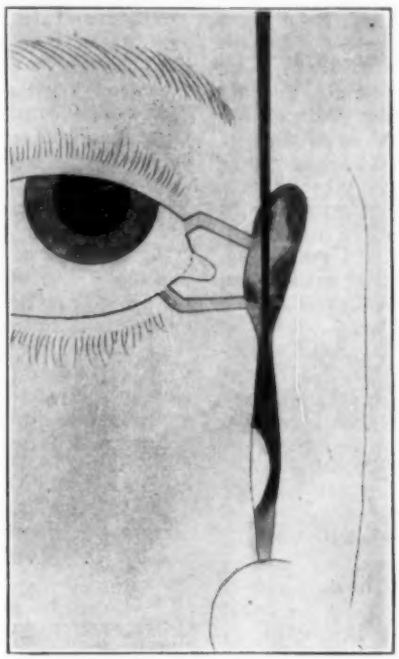


Fig. 3.—Curet in position for augur-like motion.

CONCLUSIONS

1. The simplicity of the method makes it attractive.
2. It requires but little skill to perform a good operation.
3. The sac and duct should never be irrigated after operation.
4. No loss of time or hospital expense is incurred.
5. No great outlay is required for instruments.
6. Every type of dacryocystitis can be cured, and function of the duct restored.
7. The danger of fracturing the bone, or making a false passage or producing hemorrhage with the probe, is avoided.
8. Thoroughness is absolutely essential to success.

ABSTRACT OF DISCUSSION

DR. HARRY W. WOODRUFF, Joliet, Ill.: With reference to the etiology of dacryocystitis, as advanced by Dr. Thompson, I believe that he has given us a probable cause for these conditions, the presence of foreign bodies in the nasal duct. We have had no more satisfactory explanation of the etiology of chronic dacryocystitis with stricture. Perhaps many of you have had the experience of seeing foreign bodies actually lodge in the puncta. Small ones go through easily and may lodge on the mucous surface of the nasal duct. I have a few times removed cilia that had passed into the canaliculus and were too long to make the turn and go down into the sac.

I operated on seven patients by this method. Two of these were cured; at least they have not returned, and they usually return if they are not cured. The remainder were not cured. Dr. Thompson suggested to repeat the operation. I did so on some of them, and I got no results. Dr. Thompson thinks that the cause of failure is lack of thoroughness, but in doing this secondary operation I discovered that I had done the first operation so thoroughly that a great deal of cicatricial tissue had formed. Perhaps my thoroughness, however, was applied in the wrong situation; that is, there had been too much curettement of the sac and not enough of the stricture. One class of cases in which this operation is not indicated is dacryocystitis in infants, congenital dacryocystitis. These cases are all curable by probe and washing when taken very early, and they are curable in one or at most two treatments. In these cases there may be present a membrane about the nasal opening of the duct; as soon as it is broken down an immediate cure follows.

In passing the probe in these young infants, only a few weeks old, it often happens that the membrane is not broken down but is pushed ahead of the probe. You have no means of knowing this, except that when you use the syringe the fluid does not come through into the nose. This is my theory. I have had two cases of that kind in the same family and obtained an absolute cure in each case.

I am not satisfied that Dr. Thompson's method is an absolute cure; neither am I satisfied that it is a failure. I believe that it is a better method than those methods which attempt to make an opening through from the lacrimal sac into the region higher up. In many of these cases we will be compelled to resort to the radical procedure of extirpation of the sac.

DR. JOHN GREEN, JR., St. Louis: Dr. Thompson's statement that the style is "unscientific in principle and unsatisfactory in results" is, in my opinion, rather too sweeping. Given, a narrowing of the bony duct, with simple epiphora, in which the passage of probes of moderate size is possible without the use of force, the wearing of a style not rarely results in a permanent reestablishment of satisfactory drainage. I have operated in six cases of chronic dacryocystitis in the following manner: After cocainizing the sac with 5 per cent. epinephrin cocain solution, the canaliculus is slit freely, and a small probe, say a Bowman 4, is passed to the nostril; a few drops of 10 per cent. cocain with epinephrin is injected into the bony duct. This is repeated twice at intervals of three minutes. During each injection the head is held forward so that any of the solution that reaches the nasal end of the duct will flow out of the nostril. The duct is then dilated rapidly up to 8 or 10 Theobald. The sac and duct are then curetted according to the method described by Dr. Thompson. None of these patients have complained of pain, which I attribute to the free use of 10 per cent. cocain prior to the introduction of the larger probes and curet. Too short an interval has elapsed to speak of ultimate results, but the immediate improvement was very striking, the reestablishment of free drainage and the cessation of pus formation in the sac. I was very glad to hear Dr. Woodruff speak of the use of probes in the dacryocystitis of infants. It is my impression that many of us still resort to temporizing methods, allowing these children to go month after month, when one or two probings will effect a permanent cure.

Dr. Arthur E. Prince, Springfield, Ill.: Dr. Woodruff's method of treating infantile dacryocystitis is endorsed. In my experience two probings have been sufficient to cure every case that I have seen, and it would be very unwise, almost criminal, to lacerate the mucous membrane of the canal in a case of that kind. I take exception to Dr. Woodruff's statement questioning the wisdom of opening the sac directly into the nose, and thus obtaining permanent drainage. Three years ago I published a preliminary report in the *Ophthalmic Record* of an operation for draining the sac directly into the middle meatus of the nose. Since that date I have never had occasion to remove a single lacrimal sac, neither have I had recourse to the excellent method of Dr. Gifford for destroying the lacrimal sac with trichloracetic acid. I take exception to the treatment by curetting the nasal duct on the ground that the curettement would probably cause an additional stricture and would be contraindicated in cases of congenital epiphora, as has been pointed out by Dr. Woodruff.

Dr. Harold Gifford, Omaha: I want to compliment Dr. Thompson on his theory and on his practice, if it is as successful as he says it is; and the proof of the pudding is the eating. So far as I know, this method is original with Dr. Thompson. The idea that strictures are commonly due to the accumulation of small foreign bodies at the narrowest portion of the sac or duct is well worth consideration. To account for this we really ought to find that in these people who have these strictures, the lacrimal puncta must be unusually large to allow these foreign bodies to enter. It certainly is rather rare to find any foreign bodies in the sac, but then, as Dr. Woodruff says, the fact that we have all seen a cilium part way through the punctum, shows that a foreign body of appreciable size certainly can make the passage. When I first heard of the method of Dr. Thompson I felt that it was a good way of destroying this duct and of getting a permanent closure, but Dr. Thompson's results indicate that I was wrong. I can easily see how, if his idea is correct, if granulation tissue forms in that neighborhood, the removal of it with a smooth curet might be of very permanent value.

Dr. Melville Black, Denver: I was very much interested in Dr. Thompson's theory of causation. It is not borne out by the fact that most cases of dacryocystitis are double. If this condition of affairs was almost invariably single, the hypothesis of foreign body causation would be much more tenable. But there is some inherent underlying cause. Otherwise, these cases would not almost always be double. In his drawing Dr. Thompson gives the formation and position of the seeming deposits of lime salts, or whatever it is, in the most bulging portion of the lacrimal canal, the portion in which you would not naturally expect the formation of a lime salt deposit. If there was a foreign body in the canal it presumably would not lodge in the largest portion, but in the most closed and dependent portion, and then we would have formed around the foreign body a lime salt deposit.

I take it that his presumption that we have this sort of a formation is purely theoretical. He has not said, in his paper at least, that he has made any dissection of the canal, nor demonstrated the actual presence of a foreign body. Furthermore, as Dr. Green has remarked, it would be well to determine by microscopic analysis of these curettements whether or not anything came from the canal. Everything that we have done, up to the present time, in our endeavor to reestablish the patency of this canal, has been a failure, and if this thing will do it, I want to give it a trial.

Dr. G. Henry Mundt, Chicago: I am rather surprised that some reference has not been made to the inadvisability of splitting the punctum. I have for a number of years watched the splitting up of the canaliculus, and various and sundry other procedures. It is my observation that any procedure on the lacrimal drainage apparatus, of which the splitting up of the canaliculus is part, is unsatisfactory. Dr. Thompson speaks about the importance of epiphora as preceding dacryocystitis. It may be so. I do not know. I never have followed that carefully. But I have done this in all patients who have epiphora: I make pressure over the lacrimal sac, and if there is no secretion in the sac I forget the lacrimal drainage apparatus. I believe that is the best thing to do. Unfortunately, I have not tried this procedure, but the probability of my trying it is precluded by the necessity of splitting up the canaliculus. I think that I shall continue to do Dr. Gifford's procedure.

Dr. W. R. Thompson, Fort Worth, Texas: I am enthusiastic over this method. I believe there is a good deal more to it than the majority are inclined to believe. I do not consider the splitting of the canaliculus a very serious matter. If that is the only pathologic condition remaining after the cure of a case of dacryocystitis, the patient will never complain. One patient on whom I operated a year and a half ago had a mucocele. There was no great amount of pus, but there was a decided mucus deposit in the sac which could be pressed out. I operated after this method, removing the constriction in the duct completely. I want to emphasize that that is the main part of the operation. In this case I did very little to the sac, almost nothing, but I did restore the bony canal to its normal size. That man had never been operated on before. That was the end of the treatment. He has had no trouble since. He has no overflow of tears. The instillation of cocain into the nose passed readily through into his mouth. He had the bitter taste. I could discover no opening in the canaliculus. It apparently had closed up. I do not say that that would be the case in many instances, but it certainly was the case in that particular instance. I do not operate on infants; I do not operate in any case when ordinary means will give relief. But I do operate because of the epiphora after they have resisted the ordinary treatment for a great length of time, and I get good results. Refractive errors should be corrected, but you would not expect refraction to cut any figure in a case where you had epiphora on one side. Watering of the eye might be the result of eye-strain. The cause of epiphora, of course, is to be treated until you are thoroughly convinced that there is no way of relieving it; that it will not get well. In the cases where you have an excessive amount of pus in the sac, you will curet the sac thoroughly and you will make your operation as complete as possible. Curet the sac as well as the canal. Restore the normal caliber of the nasal duct. I do not believe that in any of these cases the bony wall of the duct is changed in the least. I think it is entirely possible to restore the normal caliber of the duct by removing it. After you have curetted it out, including the granulations, then make an application of tincture of iodin and you will get results.

POLIOMYELITIS: NEW DEVELOPMENTS IN THE AFTER-CARE AND TREATMENT

BETTER RESULTS IN RESPONSE TO THE DEMAND

CHARLES OGILVY, M.D.
NEW YORK

The care and treatment of poliomyelitic cases has within recent years fallen to the lot of the orthopedic surgeon. For the first time the opportunity of controlling and supervising the treatment of these patients has been given him.

If the responsibility of the final results rests on the shoulders of the orthopedic surgeon and he has the direction of the case throughout its whole course, better results are anticipated and obtained. By this one does not mean to infer that the cooperation of the neurologist, the internist and the general practitioner is not constantly sought and maintained. Their cooperation is necessary in obtaining the best final results, but the problems involved are essentially and specifically those for the orthopedic surgeon to assume and to solve.

A year ago[1] I reported on a group of 110 cases which has been closely followed for one year. A

1. Ogilvy, Charles: A Report of a Group of One Hundred and Ten Cases of Poliomyelitis from the Acute Onset to the Present Time, The Journal A. M. A., Sept. 1, 1917, p. 691.

second year of after-care and treatment has since elapsed, and a survey of this year's work reveals a number of very interesting facts which have not been heretofore recorded. In this paper time will permit me to refer to only two essential points, (1) the return of lost function, and (2) the occurrence of deformity.

Fig. 1.—Horizontal arm splint for deltoid paralysis. This splint is made of plaster- of Paris and trimmed with adhesive plaster.

In cases of complete flaccid paralysis affecting either a muscle or a group of muscles without any return of function after six months, further treatment is useless so far as the return of function is concerned. The paralysis is permanent in this flaccid type of case in which there is no reestablishment of the communication through the nerve centers of the cord. In my group of cases we have had nine cases in which such flaccid paralysis occurred.

REST AND REST SPLINTS

In the previous paper it was stated that the one greatest factor in obtaining a return of lost function was rest for the muscles affected. I then thought that six months should be the limit of time for such inactivity. I now believe that one year is not any too long for certain cases.

The simplest and most efficient means of obtaining rest is in the use of plaster-of-Paris shell splints. These are light, easily applied, comfortably fitting and the most economical braces we can use.

Of these I wish to call attention to three in particular, first, the arm rest for deltoid paralysis (Figs. 1, 2 and 3). This is a splint in which the arm can be placed in any position necessary. It is bandaged firmly to the body over the clothing and has proved one of the most efficient splints in use. The result has been that of six deltoids primarily involved we have been able to obtain a return of function in all but one case.

The second plaster-of-Paris shell that I wish to mention is one for the spine. The difficulty of preventing a lateral deviation of the spine is very great when there is an inequality of the power of the muscles on either side. Especially is this so after the twelfth month, when it is impracticable constantly to retain the patient in a recumbent position. Figure 4 demonstrates this special brace which I have used. It is a combination of a plaster back and a canvas corset.

Emphasis should be made on the necessity of night splints in all cases in which there is a tendency to foot drop or other foot deformity (Fig. 5). Deformities will invariably follow when no such provision is made. One often sees very beautifully applied braces being worn in the day time and the foot allowed to assume positions of deformity during the night. This will ultimately become so marked as to demand operative procedures.

BRACING

There is some controversy and much misunderstanding regarding the employment of braces, both in the profession and among the laity. Some have stated that they "do not believe in bracing." The natural result of such a statement has been that parents have allowed their children to attempt walking without the use of braces, with disastrous results in many instances.

The purpose of braces is to encourage function, not to discourage it, and to prevent deformity. Both of these results are successfully obtained, provided the brace is made sufficiently light. All bracing should be made with as much joint freedom as is consistent with prevention of deformity. It is entirely an erroneous impression that the wearing of a properly applied light brace predisposes to continued weakness of the muscles. This is not the case.

Overfatigue, more than anything else, prevents a return of function, and a proper brace is the best guard we have against overfatigue. It must, however, fit accurately and be as light as possible.

Fig. 2.—Deltoid paralytic splint applied.

Fig. 3.—Same case; recovery of deltoid.

DEFORMITY

There are two deformities to which I particularly wish to draw attention. These have occurred, not during the first but during the second year. They

are those of lateral deviation of the spine and equinocavus of the foot. Either of these deformities may develop gradually as the patient's activities in the sitting and standing posture increase. They are easily

Fig. 4.—Author's plaster-of-Paris canvas corset.

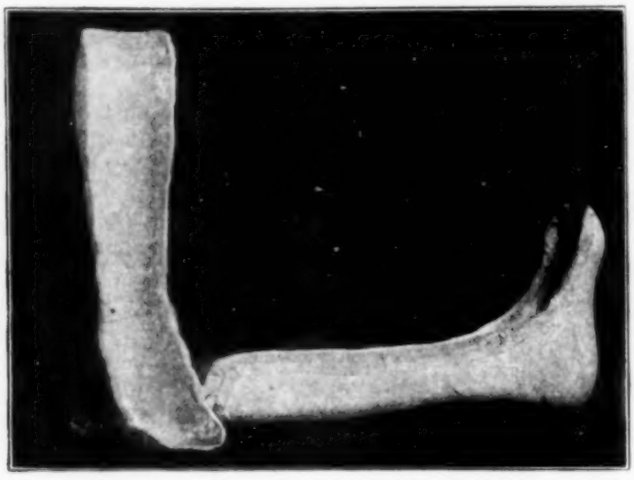


Fig. 5.—Night splints to prevent foot deformities.

accounted for but exceedingly difficult to check. If we could continuously keep these patients on their backs the question would be solved, but this is not practicable. For the milder cases a small light canvas steel corset (as seen in Figs. 6 and 7) with postural exercises has been sufficient to hold these cases in check.

The more severe cases have had a plaster-of-Paris posterior shell splint with a canvas front, as referred to above (Fig. 4). This I cannot too highly recommend, as it has many advantages over the complete plaster-of-Paris corset and at the same time has sufficient corrective force to prevent the development of deformities.

The second deformity referred to is that of equinocavus (Fig. 8). This has developed in two of my cases. In neither of these cases were any of the muscles of the leg completely paralyzed and in neither of them was any deformity whatsoever noted until the twelfth and fifteenth months, respectively, after the acute attack. Note the late date of the development of these deformities. This emphasizes the importance of continuous supervision for at least two years after the onset of the disease.

In cases in which round shoulder, malposture, develops, a shoulder brace should be applied. The lighter and simpler these are, the better. The most efficient is one in common use, which goes very much as a figure-of-eight bandage around each shoulder, being drawn firmly across the back.

Fig. 6.—Canvas steel corset for mild cases of spinal deformity, front view.

Fig. 7.—Canvas steel corset for mild cases of spinal deformity, back view.

MUSCLE TRAINING

I have employed a special muscle trainer whose sole duty it has been to establish systematic muscle training in all cases in which it was deemed advisable. My conclusions in this regard are:

1. The responsibility of muscle training cannot be left to the parents to be properly carried out.
2. Comparatively little value can be obtained by muscle training until the child is over 6 years of age.
3. It should be continued for at least two years.
4. The results obtained are dependent as much on the patient as on the trainer.
5. A great deal depends on the disposition of the child.
6. Muscle training is indispensable in cases in which it is applicable.

BATH EXERCISES, MASSAGE AND ELECTRICITY

Bath exercises are of the greatest importance and should never be omitted, especially at the stage when the return of muscle function is just sufficient to produce motion. Often such motion is encouraged without fatigue by bath exercises when the same exercises out of the bath would assuredly produce overfatigue. Furthermore, the encouragement obtained by seeing the muscle functionate in the bath is of the greatest

value in the development of power. Regular, systematic massage should not be begun before the fourth month. The value of massage is unquestionable. This should be carried on by a skilled masseuse.

Electricity for the purpose of obtaining a return of muscle function has not been used. I cannot see in any instance where it could possibly have resulted in a greater amount of muscle power than has otherwise been obtained.

CONCLUSION

I cannot too strongly recommend that these patients be continuously kept under the same care and supervision throughout. I hope that the work done by myself and others along this line will be of sufficient

Fig. 8.—Paralytic equinocavus.

value to establish a definite course of practical treatment which can be universally pursued in order that the best final results may be obtained in these cases.

40 East Forty-First Street.

The Necessity for Prenatal Care.—In an article on "The State and Prenatal Hygiene" (*British Medical Journal*, Oct. 5, 1918), E. McConnell, M.D., analyzes the death rate of infants under 1 year in the city of Glasgow with reference to the necessity of prenatal care in the interests of the mother, the child and the state. He shows that two thirds of the deaths under 3 months occur in the first month; that in the first week the deaths in both sexes are four times more numerous than in the second week, and about six times more numerous than in the fourth week after birth, while one third of the deaths during the first year occur before the fourth week of life is completed. Adding to these the stillbirths which amount to 4 per cent. of the total births, totalling about 1,200 for Glasgow and about 4,000 for Scotland, McConnell says we have an illustration on a considerable scale of the work to be done by an organized system of prenatal care. These deaths lead directly to the period antecedent to birth and away from the direct influence of environment, and have as their predominant cause what the health officer of Glasgow in a report to the Seventeenth International Congress of Medicine in London in 1913 termed "immaturity" to express the inability of the child to live apart from its mother, and would include infants coming under such designations of disease, etc., as premature, congenital defects, atelectasis, atrophy and debility or wasting diseases.

Military Medicine and Surgery

PHAGOCYTIC EXPERIMENTS IN INFLUENZA

RUTH TUNNICLIFF, M.D.
Contract Surgeon, U. S. Army
CHICAGO

The following experiments were made in an attempt to determine the relation between influenza and the complicating pneumonia and the green-producing streptococcus isolated at Camp Meade, by the late Captain George Mathers.[1] This coccus was isolated from the sputum during life and from the heart's blood, lungs, pericardial and pleural exudates at necropsy.

A report of the bacteriology of the influenza epidemic at Camp Meade was being prepared by Captain Mathers at the time of his death. He isolated a green-producing streptococcus from the sputum in 87 per cent. of 110 cases of influenza and pneumonia examined. The cultures were made on the first or second day of the disease. The influenza bacillus was also isolated in 58 per cent. of the sputum cultures. The coccus appeared in the sputum smears as gram-positive diplococci, 2 microns in length, with slightly pointed ends and a capsule. In cultures they grew in pairs and long chains and showed a capsule. On human blood agar plates the colonies were large (from 0.25 to 0.5 cm. in diameter) green, flat, moist, with regular edges, and had a tendency to become confluent. The colonies often showed umbilication in forty-eight hours. Cultures of this organism were not soluble in bile. They grew as a flocculent growth in glucose and plain broth, the fluid generally not remaining clear. They fermented glucose, lactose and saccharose, but neither mannite nor inulin, except in one instance. Sputum injected intraperitoneally into mice was virulent, killing them within twenty-four hours. These cocci were not agglutinated by type pneumococcus serums.

It is generally recognized that opsonins are the only antibodies easily demonstrated in streptococcus infections. Agglutination tests with the serum of five influenza and two pneumonia patients examined during the attack and convalescence were negative with three strains of this streptococcus, even in so low a dilution as 1:2. Opsonic experiments were therefore made. Sputum strains were generally used, as those isolated at necropsy were usually not phagocytable, presumably because too virulent. *Micrococcus catarrhalis* and *Streptococcus hemolyticus* were used as controls. The influenza bacillus frequently associated with the green-producing streptococcus was not tested at Camp Meade because this bacillus is usually spontaneously phagocytic.[2]

The opsonic power of the blood serum was estimated by the dilution method. The normal and immune serums were diluted with physiologic sodium chlorid solution to determine the point of opsonic extinction—the point at which induced phagocytosis recognizably exceeds phagocytosis with salt solution. Normal human washed leukocytes were used. The mixture of serum, leukocytes and bacterial suspension was incubated at 37 C. for fifteen minutes and the smears

1. Captain Mathers died October 5, from influenzal pneumonia, contracted while engaged in this work.
2. Tunnicliff and Davis: Jour. Infec. Dis., 1907, **4**, 66.

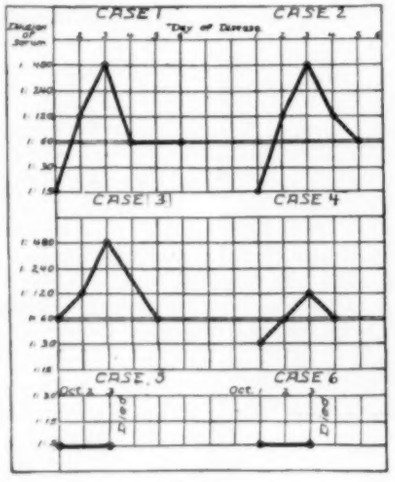
then stained with Wright's stain. Fifty polymorphonuclear leukocytes were counted and the number taking part in phagocytosis noted.

The serum of four patients with acute influenza was examined daily for its opsonic power. On the first day of the disease the opsonic content in three was below normal. On the second or third day the opsonic power of all rose well above normal, remaining high a day or two and then returning to normal (Cases 1, 2, 3 and 4 in the accompanying chart).

Ten severe cases of pneumonia following influenza were also examined in the same way. The serum showed little or no opsonins for the coccus (Cases 5 and 6). In two instances the opsonic power increased slightly with improvement in the patients' conditions, decreasing again when the patient became worse. The opsonic power of two patients who recovered returned to normal.

These opsonic changes in influenza and the complicating pneumonia were specific for the green-producing streptococcus, no fluctuations in opsonins being observed with either *Micrococcus catarrhalis* or *Streptococcus hemolyticus*.

Later in Chicago, the serum of one patient with influenza and three with influenzal pneumonia were examined for their opsonic power both for the green-producing streptococcus and the influenza bacillus. Two strains of the influenza bacillus isolated from influenzal pneumonia lungs at necropy were used; one showed practically no spontaneous phagocytosis, the other not sufficient to interfere with the experiments. All four patients showed during the acute stage no opsonins for the streptococcus, the point of opsonic extinction for the control being 1:60. One patient died. The serum of the three that recovered showed, as the symptoms subsided, a high opsonic content, the point of opsonic extinction being 1:480, 1:240 and 1:480. The negative phase in these influenzal pneumonias for the green-producing streptococcus is much more pronounced than is generally observed in other acute infectious diseases. None of these serums showed any changes in opsonins for the influenza bacillus.



Cases 1, 2, 3 and 4, opsonin curves for the green-producing streptococcus of the serum of influenza patients who recovered. Cases 5 and 6, great reduction from normal of opsonin for the green-producing streptococcus in fatal influenzal pneumonias. Point of opsonic extinction for normal person 1:60.

On account of the leukopenia in this epidemic of influenza and in the complicating pneumonias, and the frequency of complications, the activity of the leukocytes was also studied. I[2] have previously recorded that the phagocytic activity of the leukocytes is decreased during the leukopenia of measles, and suggested that this might account in some degree for the frequency of secondary infections in this disease.

Suspensions of washed blood containing approximately the same number of polymorphonuclear neutrophils from normal persons and from ten influenzal pneumonia patients were studied. The phagocytic activity of the leukocytes was determined by comparing the number of bacteria ingested under the same conditions by the two sets of leukocytes under the influence of normal serum (cytophagic index). In the case of all patients examined during the leukopenia, the polymorphonuclear cells were found to be less actively phagocytic than normal cells, the average being 0.1, as compared with the normal standard 1.00. In two patients who recovered, the leukocytes became actively phagocytic as their number returned to normal. This decreased leukocytic activity was not specific, the same change occurring with *Bacillus influenzae, Micrococcus catarrhalis* and *Streptococcus hemolyticus*.

2. Tunnicliff, Ruth: Jour. Infec. Dis., 1912, **11**, 474.

CONCLUSIONS

1. Specific opsonins for the green-producing streptococcus isolated from influenza patients developed during the course of the disease.

2. A specific decrease in opsonins for the organism occurs in the pneumonia following influenza. This lowered opsonic power persists unless the patient recovers, when it returns to or may rise considerably above normal.

The changes in opsonic power in influenza and influenzal pneumonia are specific for the green-producing streptococcus, no fluctuations being observed with *Bacillus influenzae, Micrococcus catarrhalis* or *Streptococcus hemolyticus*.

3. These experiments would indicate that the green-producing streptococcus is of some significance in influenza and the complicating pneumonia.

4. Accompanying the leukopenia of influenza occurs a nonspecific decrease in the phagocytic activity of the leukocytes. This decreased activity continues unless the patient recovers, in which case the leukocytes become normally active with the increase in number.

5. It is suggested that the leukopenia and the diminution of the phagocytic activity of the leukocytes in influenza may account in some degree for the severity and frequency of secondary infections in this disease. It is possible that convalescent serum or immune horse serum may be of value in promoting leukocytosis and also in increasing the antibody content of the serum.

Vaccination Against Pneumonia.—The experiments of the Army Medical Corps with vaccination against pneumonia due to the pneumococcus, Types I, II and III, in two of the Army camps have had so much apparent success that a memorandum has been issued to officers, enlisted men, and employees of the War Department, announcing that this prophylactic vaccination is available to all who desire it. At Camp Upton during a period of ten weeks, no cases of pneumonia due to the types of pneumococcus mentioned, occurred among vaccinated troops, and pneumonia due to other organisms was only one tenth as high among vaccinated as among the unvaccinated although previous to vaccination the pneumonia had occurred equally in the two groups. The vaccine employed is a lipovaccine. It is given in a single injection, containing pneumococci, Types I, II and III. Reactions from injections, etc., are, as a rule, less pronounced than after the use of antityphoid vaccination. The vaccination is not intended to cure those who are ill with pneumonia, and it is not advised for persons who are suffering from acute colds or fever.

EPIDEMIC OF BRONCHOPNEUMONIA AT CAMP GRANT, ILL.

PRELIMINARY BACTERIOLOGIC REPORT *

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Sept. 21, 1918, an epidemic disease characterized by a sore or dry throat, cough, fever, general prostration, and in a certain number of patients by a rapidly progressing pneumonia, broke out at Camp Grant. While the date September 21 is given as the day of onset during which fifty-six patients were admitted to the base hospital, there had been about fifteen or twenty patients admitted during the three or four days immediately preceding with symptoms identical, and had been considered to have "influenza."

The rapidity with which the disease spread can be appreciated best by reviewing the number of hospital admissions on the days succeeding the onset of the epidemic, indicated in Chart 1. The first death occurred on the third day, and the postmortem examination confirmed the clinical diagnosis of bronchopneumonia. The number of deaths on the subsequent days of the epidemic are indicated in Chart 2. Practically all deaths followed a clinical diagnosis of pneumonia, a diagnosis largely supported by postmortem examinations.

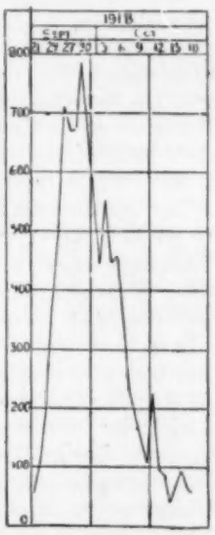

Chart 1. — Admission rate: September 21, 56; 22, 108; 23, 193; 24, 369; 25, 491; 26, 711; 27, 670; 28, 671; 29, 788; 30, 689; October 1, 567; 2, 440; 3, 566; 4, 445; 5, 459; 6, 375; 7, 235; 8, 197; 9, 155; 10, 118; 11, 229; 12, 98; 13, 87; 14, 40; 15, 64; 16, 95; 17, 67; 18, 54.

The arrival in the hospital of a large number of patients with symptoms referable to infection of the respiratory passages suggested at once that the possible or even highly probable portal of entry of the disease-producing organism or organisms was through the nasopharynx, and that a bacteriologic examination of these tissues would demonstrate the variety of bacteria as well as the predominating type of organism, if there be such. Following this as a reasonable basis for investigation, throat cultures were taken on Loeffler's medium from the posterior pharynx of the first 300 hospital admissions and examined after twenty-four hours' incubation. The predominating organisms growing on this medium were gram-positive, usually diplococci as such or in short chains. Following this, 159 throat cultures were taken on blood agar plates in order to differentiate the gram-positive organisms, as well as to favor the growth of the influenza bacillus whenever it would be present. Many of these plates were pure cultures of fine green colonies containing gram-positive diplococci as such or in short chains, frequently lancet shaped. In all throat cultures the occurrence of the influenza bacillus was only occasional, never in pure culture, and, when found, always with a predominating number of diplococci with tinctorial, morphologic and cultural characteristics as mentioned above. A few colonies of hemolytic streptococci were noted in twenty of the 159 blood agar plates, nonhemolytic in not more than twelve.

Approximately 200 postmortem examinations were made during the epidemic, and there was found regularly an extensive irregular consolidation of the lungs. The gross appearance of these lungs was striking in that they appeared voluminous and dark red, with much blood and edema. On the pleural surfaces there was little fibrin. The bronchi contained a thin gray or brown fluid and were lined by a red mucous membrane. During the decline of the epidemic, gray nodular consolidations were found, and complications and sequelae of a pneumonia, such as huge serofibrinous pleuritis, empyema, acute serofibrinous and acute suppurative pericarditis, all of these contributing no small part in continuing the mortality.

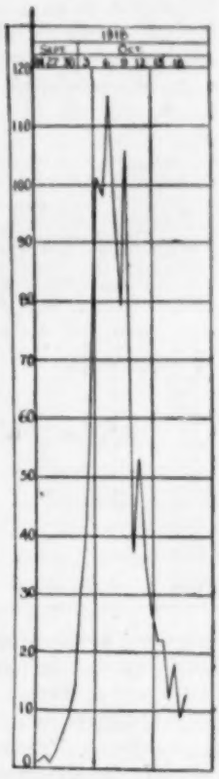

Chart 2.—Death rate: September 24, 1; 25, 2; 26, 1; 27, 3; 28, 6; 29, 9; 30, 14; October 1, 31; 2, 43; 3, 76; 4, 101; 5, 98; 6, 115; 7, 98; 8, 79; 9, 106; 10, 37; 11, 53; 12, 36; 13, 27; 14, 22; 15, 22; 16, 12; 17, 18; 18, 9; 19, 13.

Cultures on blood agar plates and direct smears on glass slides were made from the exudate of the consolidated lungs at all postmortem examinations. The surface streaks of the blood agar plates frequently were purely fine green colonies containing gram-positive, lancet-shaped diplococci. Organisms resembling the influenza bacillus were rarely found, and never in pure culture.

Heart's blood was taken at each necropsy and cultivated. In a large number the gram-positive organism described above was isolated in pure culture. Blood cultures were made on ninety patients in the hospital and forty-five of them were positive, a gram-positive diplococcus being isolated in pure strain without exception.

Spinal fluid removed at the postmortem examinations and from patients in the hospital has yielded this organism frequently, and it has been cultivated in pure strains from the exudate in the middle ears, from the frontal, maxillary and ethmoidal sinuses. In none of the sinus infections of the head has the influenza bacillus been observed either in direct smears of the exudate or in the blood agar plate cultures.

A large number of strains of this organism have been isolated from the lungs and the heart's blood at the postmortem examinations, and from the circulating blood stream of patients in the hospital. Table 1 contains certain cultural, morphologic and virulence properties for a few from the heart's blood, and Table 2 the same for those isolated from the blood stream of patients in the hospital, while Table 3 lists a few from the lungs. These tables indicate that the gram-positive diplococcus recovered from these fluids and tissues has all the morphologic and cultural characteristics of

*From the Laboratory of the Base Hospital.

a pneumococcus, at least so far as modern standards of identification permit. They further detail experiments demonstrating the exceedingly great virulence these strains possess for susceptible laboratory animals. A guinea-pig of 328 gm. weight was dead ten hours after an intraperitoneal injection of half the twenty-four-hour growth on a blood agar slant of one of the strains isolated from the heart's blood. The virulence of these strains exceeds by far that known for pneumococci usually associated with disease, and while the organisms meet all the morphologic and cultural requirements of a pneumococcus, this difference in virulence makes them distinctive.

TABLE 1.—HEART'S BLOOD CULTURES, POSTMORTEM

Culture	Inulin Fermentation	Capsule		Bile Solubility	Amount of 1-24 Hr. Blood Agar Slant Injected into W. Mouse	Dose Fatal in Hours	Type	Organism Recovered Pure from Mouse Heart's Blood
		On Blood Agar	In h. b. of Mouse					
1024	+	—	+	+	0.0231	38	II	+
1029	+	—	+	+	0.0231	26	II	+
1030	+	—	+	+	0.0231	31	II	+
1031	+	+	+	+	0.0231	25	II	+
1032	+	—	+	+	0.0231	25	IV	+
1033	—	—	+	+	0.0231	25	IV	+
1034	+	+	+	+	0.0231	25	IV	+
1035	+	+	+	+	0.0231	31	II	+
1037	—	—	+	+	0.0231	27	II	+
1038	+	+	+	+	0.0231	25	II	+
1039	+	—	+	+	0.0231	25	II	+
1040	+	—	+	+	0.0231	24	IV	+
1041	—	+	+	+	0.0231	30	IV	+
1050	+	—	+	+	0.0231	28	II	+
1053	+	—	+	+	0.0231	43	II	+
1056	+	—	+	+	0.0231	21	IV	+

To control these investigations, throat cultures were taken from fifty of the German prisoners confined at Camp Grant. This group of men has escaped entirely the infection, although they have been in the camp since last spring. Colonies of pneumococci were found in twenty of these cultures and isolated in pure culture. White mice were inoculated with half the growth of these organisms on blood agar slants after twenty-four hours' incubation without the slightest effect on these animals.

TABLE 2.—BLOOD CULTURES

Culture	Inulin Fermentation	Capsule		Bile Solubility	Amount of 1-24 Hr. Blood Agar Slant Injected into W. Mouse	Dose Fatal in Hours	Type	Organism Recovered Pure from Mouse Heart's Blood
		On Blood Agar	In h. b. of Mouse					
604	+	—	—	+	0.0231	18	II	+
605	+	—	+	+	0.0231	22	II	+
606	+	—	+	+	0.0231	22	II	+
608	+	—	+	+	0.0231	24	IV	+
610	+	—	—	+	0.0231	18	IV	+
611	+	—	+	+	0.0231	30	IV	+
614	+	—	+	+	0.0231	12	II	+
615	+	—	+	+	0.0231	16	II	+
630	+	—	+	+	0.0231	32	II	+
636	—	+	+	+	0.0231	22	II	+
638	+	—	+	+	0.0231	16	II	+
640	+	—	+	+	0.0231	22	IV	+
646	+	—	+	+	0.0231	18	II	+
651	+	—	+	+	0.0231	68	I	+
654	+	—	+	+	0.0231	22	II	+
655	+	—	+	+	0.0231	14	II	+
660	+	—	+	+	0.0231	30	IV	+
663	+	—	+	+	0.0231	16	II	+
664	+	—	+	+	0.0231	22	IV	+
665	—	—	+	+	0.0231	16	II	+
666	—	—	+	+	0.0231	36	II	+

CONCLUSIONS

1. The epidemic of bronchopneumonia at Camp Grant is due to infection by a virulent strain of pneumococcus.

2. The virulence of this organism exceeds greatly that of strains usually identified in pneumonia.

TABLE 3.—LUNG CULTURES, POSTMORTEM

Culture	Inulin Fermentation	Capsule		Bile Solubility	Amount of 1-24 Hr. Blood Agar Slant Injected into W. Mouse	Dose Fatal in Hours	Type	Organism Recovered Pure from Mouse Heart's Blood
		On Blood Agar	In h. b. of Mouse					
265	+	—	+	+	0.00555	30	IV	+
276	+	—	+	+	0.00555	24	IV	+
287	+	—	+	+	0.00555	18	IV	+
288	+	—	+	+	0.00555	24	II	+
291	+	—	+	+	0.00555	24	II	+
293	+	—	+	+	0.00555	18	II	+
294	+	—	+	+	0.00555	29	II	+
295	+	—	+	+	0.00555	32	II	+
343	+	—	+	+	0.00185	36	II	+
358	+	—	+	+	0.00185	30	IV	+
369	+	—	+	+	0.00185	30	II	+
384	+	—	+	+	0.00555	14	IV	+
398	+	—	+	+	0.00555	23	II	+

3. This virulence is such as to explain the epidemic of bronchopneumonia.

4. *Bacillus influenzae* played no rôle in the epidemic at Camp Grant.

CLINICAL OBSERVATIONS ON INFLUENZA

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The epidemic, or rather pandemic, of influenza through which Chicago has just passed has afforded me an opportunity of making observations that it might be of interest to record, as they were made in family practice, which is not so well represented in medical literature as is that of the hospital, even though the vast bulk of the work of the medical profession lies in the former field rather than in the latter.

One of the startling features of the pandemic was its sudden flaring up and its equally sudden decline, reminding one of a flame consuming highly combustible material, which died down as soon as the supply of the material was exhausted. There is every reason to believe that, within a few weeks of its onset, the infection was universally present in the nose and throat of the people, disseminated by mouth spray given off on talking by innumerable carriers and, in addition, by the coughing and sneezing of the sick. Susceptibility was very general, though it varied greatly in degree. Among those who escaped well marked sickness there are few who could not recall having had an occluded or running nose, or a raw feeling in the throat, or a cough, or aches and pains, at some time during the period of the prevalence of the disease, these probably representing the price such persons paid for their immunization. That blood relationship had something to do with susceptibility was shown by the fact that, in some families, every member developed the disease in well marked form, while in others there was not one definite case, though exposure to the infection had taken place. The very old and the very young showed themselves, on the whole, less susceptible.

In view of this universal prevalence of the infection, quarantine was necessarily useless. During this pandemic, wearing of face masks had no greater prophylactic effect than the liberal consumption of whisky

that was indulged in by some for this purpose, or the traditional camphor bags that were found hanging about the necks of so many children sick with influenza. That face masks were useless in protecting one against the infection was shown by the fact that nurses, who of all people were especially given to wearing them, were notoriously prone to become victims of the infection. This is easily understood when we realize that the conjunctiva is continuous with the respiratory mucous membrane and that the eye, unless especially protected, is particularly exposed to bombardment by minute particles in the air. Of course, face masks are useful to protect others against infection by the mouth spray of the wearer.

The symptomatology of the disease was quite multiform. Thus, there were cases that merely showed fever without aches and pains, and others in which there were aches and pains without fever, though generally both were present. Profuse sweating occurred in most cases, increased undoubtedly by the medication employed. The majority of patients coughed, some coughed and vomited, and some vomited and did not cough. The nose was not as frequently affected as were the bronchial tubes. When it was involved, there was a marked tendency to nosebleed. The throat was rarely complained of. Its examination merely revealed hyperemia, and only exceptionally follicular exudate. A few cases of dysenteriform disturbance were encountered. Prostration was generally out of proportion to the height and duration of the fever.

The average duration of the disease in uncomplicated cases was about three days. There was, however, quite a tendency to the occurrence of a relapse, increased, it seemed, by getting out of bed prematurely. The relapse was in some cases more severe than the primary attack, and in others less severe.

Bronchopneumonia was the most important and most serious complication. In every case of pneumonia that I observed in this epidemic, its occurrence was apparently due either to inability or unwillingness, on the part of the patient, to stay in bed long enough or thoroughly enough; or to physiologic handicaps, such as pregnancy, organic heart disease, chronic bronchitis, infancy or old age; or, most especially, to these two influences combined. Over and over again, this was the story: The patient had an ordinary attack of influenza, during which he did not stay in bed continuously. He then felt a little better, got up, and was taken sick again—this time with severe symptoms—and he soon displayed the phenomena of bronchopneumonia. On the other hand, patients who from the beginning of their sickness were kept in bed continuously, and who staid in bed until they had been perfectly well for two or three days, seemed to be quite immune from this complication. If thorough bed treatment of the attack of influenza actually prevents bronchopneumonia, as is my belief, then we must consider this treatment of life-saving importance. How bed treatment might prevent pneumonia, as well as lessen the tendency to relapse, can be understood when we think of an attack of influenza as a state during which the victim of the infection acquires immunity against the organisms that are attempting to invade his system. We have abundant evidence that warmth favors the development of immunity, and that chilling antagonizes it. A patient who is kept in bed at a uniform temperature is therefore in a favorable condition to triumph over the enemy within him. Chilling, on the other hand, weakens the defenses and turns the tide of battle against the patient. Sweaty skins and wet garments predispose to chilling. Thus it is easy to see why the freely perspiring influenza patient must be particularly susceptible to chilling. Especially critical is the period when the patient's temperature is just falling to, or below, the normal. He is then commencing to feel fairly well, and sees no reason for staying in bed. With skin and garments wet with perspiration, he gets out of bed, but soon returns, chilly and miserable, having lost the immunity that was just becoming established. A relapse or an attack of bronchopneumonia is the result.

The time the patient should remain in bed might be placed, for mild cases, at from two to three days, counted from the time the patient has commenced to feel perfectly well for a whole day. For severe cases, and in handicapped patients, or when fine crepitant râles continue to be heard in the chest, the time taken for full establishment of convalescence should be considerably increased.

As it is important to protect the patient against chilling, use of the bed pan and of the urinal must be insisted on. This also prevents the fainting on going into the toilet room that occurred in quite a number of cases. It is no less important to keep the patient's garments and bedclothing dry. The danger of wet clothing is best appreciated when it is realized that a person wrapped in wet fabric loses heat faster than the same body would if it were naked. To keep these profusely perspiring patients dry is quite a task, which should, however, be faithfully carried out by the nurse, who, on removing the wet garments, should rub the patient dry with a warm towel and apply warm, dry clothing, all this being done under covers. The proposition of keeping the patient warm must not be carried out to the extent of keeping the patient hot. The temperature of the sick room should not exceed 70 F. Nor does this proposition militate against free ventilation, provided this is carried out so as to admit fresh air liberally into the room without exposing its occupants to the danger of chilling. For most of these cases, good nursing was more important, as well as more difficult to secure, than good doctoring. This pandemic occurring at a time when there was such great scarcity of trained nurses, on account of the war, brought home to us how necessary it is for every woman—and every man—to be at least somewhat skilled in nursing the sick.

In view of the absence of specific treatment, the therapy of this disease had to be symptomatic. This form of therapy—often disdainfully characterized as "merely symptomatic"—represents, in my view, the very acme of the medical art. Perhaps, if we would instead use the term "functional therapy," as has been suggested, its significance and importance would be better appreciated. It is our duty and privilege to take care of the derangements of the patient's functions while his system is fighting the infection. Since these derangements were of most varied character and intensity, such a thing as a routine treatment of influenza is obviously an absurdity.

The symptom that perhaps attracted most therapeutic attention, and probably least deserved it, was the fever. This was rarely high enough to be of detriment to the patient. When it became too high—exceeded,

let us say, 104 F.—it was easy to reduce it by hydrotherapy or by antipyretic medication. On the other hand, a proper object of therapeutic attack were the pains and aches to which so many of these patients were subject. It was their analgesic, rather than their antipyretic action, that rendered various coal-tar derivatives so useful in this condition. It made very little difference whether acetylsalicylic acid or other salicylate, acetphenetidin, antipyrin or pyramidon were selected, provided the proper dose was chosen, namely, the smallest possible dose adequate to produce the desired result. I have seen as little as 0.12 gm. of acetphenetidin or of pyramidon, when given every hour, followed within a few hours by complete relief of the discomforts against which they were administered. The chief disadvantage of all these bodies is their great sudorific action. This at times made the patients more uncomfortable than the aches against which they were used. Hence, when great pain was complained of, and its antitussic action did not render it contraindicated, I have added an opiate—generally codein phosphate, 0.03 gm., to each dose of pyramidon—rather than to increase the dose of the coal-tar analgesic. It is a somewhat disagreeable thing to reflect on that this treatment might make the patient feel so comfortable that, considering himself well before he really is, he may interrupt his bed treatment prematurely and thus invite occurrence of relapse or even of pneumonia.

The proper management of the cough is probably of fundamental importance. If retention of secretion and clogging up of bronchioles favors the development of bronchopneumonia, as it is only reasonable to believe, then favoring expectoration may save life. It has been my good fortune to come across a number of patients in whom, from the rapid and distressed breathing, the almost nonproductive cough, and the innumerable fine râles in the chest, one feared the onset of pneumonia, that cleared up phenomenally, within a couple of days, under the influence of iodid coupled with the liberal ingestion of fluid. In milder cases, I have used, as expectorant, ammonium chlorid in doses of 0.3 gm. prescribed with a flavoring syrup vehicle and taken in half a tumblerful of water, every two hours. But, when the more serious nature of the case demanded a more drastic action, or when the patient obtained no relief from the ammonium chlorid, I have nearly always succeeded in securing a satisfactory result by the addition of 0.12 gm. of sodium iodid to each dose of ammonium chlorid, given in cases in which prompt action seemed urgent every hour, and later, every two to four hours. The interval between the doses is increased as expectoration or nasal discharge become freely established. Reasoning and clinical observation have led me to believe that any expectorant given for the purpose of loosening secretion is likely to be disappointing unless its administration is accompanied by the liberal ingestion of fluid. Hence I have urged the ingestion of a tumblerful of fluid every hour, while the patient is awake, having the patient take a tumblerful of milk or other nutritious fluid every two hours, and a glassful of lemonade, grape juice and water, seltzer water, or other drink every two hours, alternating with the milk. When the secretion has become profuse, an aromatic expectorant like creosote carbonate would seem to be indicated. However, in these cases I have found this agent unsatisfactory. In a number of instances, discontinuance of the iodid and use of creosote carbonate in 0.3 gm. doses every four hours was followed by prompt aggravation of the cough and increase in the number of râles heard in the chest, as well as the reappearance of fever. I therefore now reduce the daily dosage of iodid very gradually instead of stopping it abruptly, and have not employed creosote carbonate of late, even when the expectoration has seemed excessive. I believe that the prescribing of an opiate, whether by itself or in complex cough syrups, is pernicious practice, a direct invitation to the onset of bronchopneumonia. An exceptional case may be found now and then, in which a patient with a chest free from physical findings is kept from sleep by a useless, absolutely nonproductive cough. In such a case, a sufficient dose of codein, 0.03 gm. every hour at bedtime for a few doses, secures a good night's rest; and the ingestion of a dose every four hours during the day maintains comfort. When, however, the cough is at all productive or there are râles in the chest, experience has made me afraid to prescribe opiates in any form or any dose. Even if the opiate is not followed by the development of bronchopneumonia, it will prolong the duration of the trouble, as the harassing cough returns as soon as the opiate is stopped. Should the cough be excessive and interfere with sleep, it is well to try to lessen the nervous excitability by means of bromid, which may be given combined with the iodid.

Insomnia should not be permittted in these patients for more than one night. Since sleep is as important as food for the maintenance of strength, and as we never know at the beginning how long the case may last or how serious it may become, it is, to say the least, prudent to procure sleep for the sufferer. The sleep must not be sufficiently profound or continuous, however, to abolish coughing for many hours. I have found it convenient to carry with me 0.3 gm. barbital tablets and to have the patient who has difficulty in going to sleep take one at bedtime, to be repeated in two hours if he is not yet asleep. As barbital has not proved uniformly successful, I have prescribed with more complete satisfaction in those cases in which barbital failed, 0.3 gm. of chloral hydrate to be repeated every hour until the patient is asleep. Of course, the chloral could not be used in patients with enfeebled circulation.

A tendency to vomiting on slight provocation was so generally present, especially in children and young women, that it was found wise to limit the patient to liquid diet. Eating crackers or an apple has precipitated an attack of emesis. Medicine was also likely to do this, especially the administration of ammonium chlorid. Hence it is well to start this medication cautiously in those predisposed to emesis, by giving at first one-fourth and later one-half the desired dose and not going up to the full dose until one feels confident that it is likely to be tolerated. With some patients, vomiting was a prominent and distressing symptom. In such cases, twenty-four hours of complete rest to the stomach, even to the extent of limiting the ingestion of water to teaspoonful doses every fifteen minutes and withholding all medicine, usually controlled the difficulty. To prevent dehydration of the system and the development of acidosis, as well as to favor expectoration, retention enemas of 250 c.c., or of as much as the patient could hold, of physiologic

sodium chlorid solution with sodium bicarbonate, two teaspoonfuls to the quart, were used from every four to eight hours, the shorter intervals being employed when the amount that could be retained was rather small.

It would consume too much space to describe in detail all the other measures that were found useful: such as prolonged irrigation of the auditory meatus with hot water followed by hot glycerin for earache, the use of menthol for the rhinitis, or of the potassium chlorate-ferric chlorid gargle for sore throat, when disturbance of these parts was prominent; strapping the lower border of the ribs with adhesive plaster for pain and soreness due to strain from coughing, and the application of the ice bag for excessive headache, or mustard poultices to especially sore areas elsewhere. The employment of cathartics was, of course, quite generally required. Solution of magnesium citrate was so popular for this purpose that druggists could hardly put it up fast enough during the pandemic to keep ahead of the demand.

I am fully aware of the fact that the great shortcoming of such reports as this one is its lack of numerical data and hence of definiteness, and the consequent difficulty of arriving at scientific conclusions. Even though the observations laid down were made in more than a thousand cases of influenza, many of these were seen only once. Hence it is impossible to be certain of the subsequent course in a considerable number of these cases. Some of these patients may subsequently have developed pneumonia and called another physician. Among those treated from the very beginning, whose subsequent course was known, bronchopneumonia occurred in four cases.

One patient was a pregnant woman who did not stay in bed during the first febrile period, because for a part of the time she had to take care of herself and of a sick baby. She recovered.

One patient, a young foreigner, came to my office with a temperature of 103 F. When he arrived home with instructions that he must go to bed and stay there, his wife turned him out of the house, saying that she had to look out for herself and her children. He stayed without care in a rooming house for three days, and when I saw him again he had a violent hemorrhagic bronchopneumonia from which he died.

A young man with valvular heart disease, who was taken care of by his mother and who refused to stay in bed for evacuation of urine and feces, developed pneumonia and died from it within five days of the beginning of the disease.

An old woman, who probably stayed in bed from the commencement of her illness, developed an extensive bronchopneumonia involvement from which she died after ten days.

In nearly every instance of about twenty-five cases of bronchopneumonia seen for the first time after the establishment of this complication, there was a history of incomplete bed treatment; and, in some, considerable evidence that the physician previously in charge had used an opiate.

SUMMARY

Bronchopneumonia, the great cause of death from influenza, is probably in a considerable proportion of cases a preventable complication.

The prevention of bronchopneumonia rests chiefly on the enforcement of sufficiently thorough and prolonged rest in bed, and the favoring of free expectoration by the copious ingestion of fluid and perhaps the use of iodid and the avoidance of opiates.

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ACUTE VEGETATIVE ENDOCARDITIS WITH MULTIPLE SECONDARY FOCI OF INVOLVEMENT

DUE TO MICROCOCCUS PHARYNGITIDIS-SICCAE *

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Medical work in the armies of this country and of European countries has brought to light, not only new diseases, like trench fever, but also manifestations of infectious agents previously infrequent in civil life. As examples of the latter may be mentioned the increasingly great importance of the hemolytic streptococcus as a cause of pneumonia and of empyema in this country during the past winter, and the causation of bacteremia and other conditions by *M. catarrhalis*, previously considered almost if not quite harmless, as reported by British army surgeons. Of a similar nature, that is, a fatal infection by an organism ordinarily a harmless parasite, is the case reported herewith. Terminal infection by *B. coli* and other normally nonpathogenic bacteria occurs frequently enough in individuals whose resistance has been weakened by other disease. In the case reported the organism concerned has probably never before caused an infection of the kind described, and the infection occurred in an individual who was doing full military duty and who was not weakened by any other disease condition.

REPORT OF CASE

Clinical Course.—A private, white, aged 25, a member of the Headquarters Company of the Military Police was admitted to the base hospital, Camp Jackson, July 25, 1918. The family history was negative. He had had pneumonia in 1913; otherwise the previous history was negative. Particularly is it to be noted that he had never had rheumatism. July 17, while in the city of Columbia, he complained of headache, fever, and pains all over the body. He remained in the barracks until July 22, when he reported for duty. July 24, he was drenched in a storm. He reported at sick call next morning, complaining of pains and aches all over the body, and was sent to the base hospital. On admission the lungs and abdomen were negative. Old herpes labialis was present. The heart was not enlarged, the sounds were of good quality, and a loud systolic murmur was present at the apex. On the four days following admission the clinical record makes no note of anything of importance except fever. July 30, petechial spots were noted on the abdomen. July 31, the following notes were made by Major W. W. Herrick, Chief of the Medical Service:

"Mentally alert. Does not look very toxic. Heart: Apex difficult to locate, apparently in nipple line; right border 1½ inches from midsternum; at apex a loud, rough, blowing systolic murmur, heard in the left axilla and also all over the precordium. Lungs clear. Spleen felt one-half inch below ribs. . . . Profuse petechial eruption over trunk and extremities. A few on the conjunctiva and one on the hard palate."

The diagnosis at this time was septic endocarditis, probably streptococcic. August 1, there was shortness of breath and cyanosis of the finger tips. August 2, the petechial rash was very general over the trunk, and the systolic murmur at the apex was harsher and louder than before. On this day he became irrational. August 3, the pulse was weak, rapid and thready, and the patient was irrational and unconscious. He died at 4:15 a. m., August 4.

Repeated examinations of the blood for malaria were negative. Blood cultures were made, July 30 and August 2. Each

* From the laboratory of the Base Hospital, Camp Jackson, Marshall A. Barber, Captain, S. C., U. S. Army, Chief of Laboratory.

of these gave a pure culture of a gram-negative diplococcus that was not agglutinated by polyvalent antimeningococcus serum. August 1, the urine contained a few pus cells and red blood corpuscles. Examination of spinal fluid removed, August 2 showed a trace of globulin, pus cells, but no organisms. The white blood count is given in Table 1.

TABLE 1.—WHITE BLOOD COUNT

Date	Total	Small Mononuclears Per Cent.	Large Mononuclears Per Cent.	Polymorphonuclears Per Cent.
July 26	18,000	7	3	90
July 27	16,000	10	2	88
July 29	20,600	14	..	86
Aug. 1	29,200	9	..	91

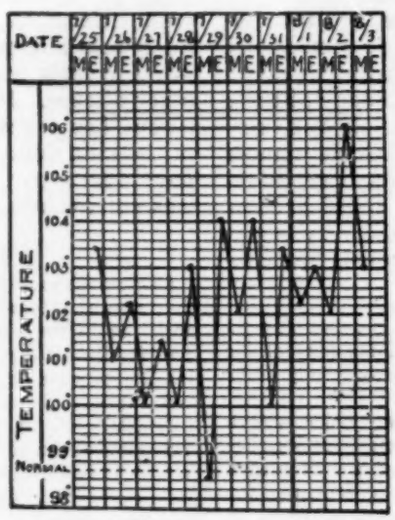
The course of the temperature is shown by the chart.

Necropsy.—The examination was made six hours after death.

External Examination: In the skin of the arms, chest, abdomen and neck were a number of sharply defined, bright red petechiae from 1 to 2 mm. in diameter. These were most numerous in the skin of the neck.

Internal Examination: The peritoneal, pleural and pericardial cavities were free of excess fluid. In the parietal peritoneum were a number of petechiae, of the size and appearance of those of the skin. A few similar lesions were present in both parietal pleurae, and they were more numerous in the parietal pericardium, especially that over the diaphragm, than in the pleurae or peritoneum.

Heart: On the anterior surface of the heart was an irregular milky spot. The right auricle and ventricle were distended. The apex extended to one finger's breadth beyond the left nipple line. The tricuspid and pulmonic valves were normal. On each segment of the mitral valve, where the segments come together anteriorly, was a mass of pale, wartlike or papillomatous vegetations, each mass measuring about 1 cm. in diameter. Some of the wartlike outgrowths making up these masses were attached by very slender peduncles. On the chordae of the posterior segment, beneath the free margin of the latter, was a third group of similar nodular vegetations. The vegetations were rather soft. The aortic valves and the root of the aorta were normal. Over the apex of the left ventricle, the tissue appeared congested through the epicardium. On section through this region, the heart wall contained two poorly defined, irregularly outlined areas, lying very close together and each about 1 cm. in greatest diameter, in which the heart muscle was pale and opaque. The opaque muscle was surrounded by a narrow zone of deeply congested tissue.



Course of the temperature.

Spleen: This was about three times the normal size. The capsule was thin, smooth and glistening. Through the capsule the tissue of the convex surface near the upper pole had a mottled appearance. On section this region was poorly defined, occupied about one-fourth the long axis of the spleen, and the tissue was paler and cloudier than the rest of the tissue, which was grayish red. At the middle of the long axis of the spleen was a second small area similar to that described.

Liver: The size, consistency and external surface were normal. Scattered about on the cut surface after section were a number of opaque, yellowish spots, from 0.5 to 1 mm. in diameter.

Kidneys: These were slightly increased in size. The capsule of each was thin and was easily removed. After the capsule was removed the surface of each kidney showed numerous dark red areas from 0.5 to 2 mm. in diameter. At the anterior surface of the upper pole of the left kidney was an irregularly shaped area 5 cm. in greatest diameter, which was centrally pale and peripherally dark red. The middle of the convex border of the left kidney showed a similar area 1.5 cm. in greatest diameter on the surface, and the upper pole of the right kidney contained a similar lesion. On section the small, deep red areas noted on the surface extended downward through the cortex as narrow, deep red wedges. The larger areas were centrally opaque, surrounded by intensely congested tissue, and extended entirely through the cortex. The cortical tissue between the lesions was opaque and cloudy. The pelves and ureters were normal.

Gastro-Intestinal Tract: The intestine, in situ, showed through the peritoneum a number of dark red, fairly sharply outlined, round areas from 0.5 to 1.5 cm. in diameter. In the intestine after removal were found large numbers of these areas, and they were present throughout the intestine from the duodenum to the sigmoid. They tended to be arranged in groups of from two to four or five. Some had shotlike, firm, slightly raised, opaque, grayish centers about 0.5 mm. in diameter. Except for these lesions the gastro-intestinal tract appeared normal.

Microscopic Examination.—Lung: In areas which usually comprise several lobules the tissue was consolidated. At the center of such areas was a bronchus whose epithelium was partly desquamated and whose lumen was filled with pus cells. The alveoli surrounding the bronchus were filled with polymorphonuclear leukocytes, and the septal capillaries were distended with blood. Farther out, the air spaces were filled with red corpuscles. No fibrin was present. Between the consolidated areas the lung tissue was normal.

Heart: In sections from the margins of the infarcted areas of the left ventricle, the muscle cells nearest the lesion were granular and necrotic. Their nuclei were partly pyknotic and partly fragmented. Farther away from the infarct the muscle fibers were swollen and faintly stained. The stroma between the muscle tissue was edematous. One section contained a large vein, cut in cross-section, which was markedly involved. At one point the intima was replaced by a nodular area composed of necrotic connective tissue infiltrated by polymorphonuclear leukocytes. At another point the wall, in an area comprising about one-fourth the circumference of the vessel, was completely necrotic throughout its entire thickness. The tissue surrounding the vessel was necrotic, and was densely infiltrated by polymorphonuclear leukocytes.

Mitral Valve: The tissue of the valve was edematous and contained young connective tissue nuclei, together with a few lymphocytes. Just beneath the vegetation the tissue was partly necrotic and was densely infiltrated by polymorphonuclear leukocytes, the involvement extending through the thickness of the valve into the muscle tissue. On the free surface of the valve the vegetation was attached by a broad base. It was composed almost wholly of irregularly shaped masses of bacteria, which gave to the vegetation under low magnification a cauliflower-like appearance. Between the masses there was structureless, granular, eosin stained material which did not take the Weigert fibrin stain and which contained a few polymorphonuclear leukocytes. On the free surface of the vegetation was a thin layer of similar material which contained red corpuscles. In sections stained by the Gram-Weigert method the bacteria were unstained, with the exception of a few coccus-like bodies in a few of the colonies at the upper part of the vegetation. In sections stained with methylene blue the bacteria were stained, and the masses were composed of cocci arranged in pairs.

Spleen: The infarcted tissue was hemorrhagic, many of its nuclei were fragmented, and it contained polymorphonuclear leukocytes. Numerous polymorphonuclear leukocytes were present in the pulp of an accessory spleen that was present and not infarcted.

Liver: The liver cells were swollen and finely granular. A few contained bile pigment. In a few widely separated, small, sharply defined areas, the liver cells stained faintly, and their cytoplasm was finely vacuolated. A few lymphocytes were present in the interlobular stroma.

Kidney: In the convoluted tubules the epithelium was so swollen as almost to obliterate the lumina. These cells were granular, and a few had lost their nuclei. The glomeruli were swollen, and their capillary loops were indistinct. In an occasional glomerulus one or more loops were granular, necrotic and deeply eosin stained. In some glomeruli the capsule was distended, and the space contained granular material. Many of the tubules in the medulla contained free red corpuscles. The tissue of the larger infarcts was completely necrotic. Peripherally the necrotic tissue was richly infiltrated by polymorphonuclear leukocytes. In the uninfarcted tissue, small, sharply defined collections of pus cells were present. At the center of some of these abscesses a small blood vessel filled with polymorphonuclear leukocytes could be seen. Situated at the side of one vessel was a larger abscess, at the center of which was a colony of bacteria that had the same appearance and staining reaction as the colonies in the valve vegetation.

Suprarenal: The stroma of the cortex was edematous. In the medulla of one suprarenal was a small abscess.

Intestine: In a section through one of the lesions of the small intestine, a dense collection of polymorphonuclear leukocytes and lymphocytes was present in the submucosa. The veins of the surrounding tissue were markedly distended, and free blood was present in the submucosa.

Diagnosis.—The pathologic findings were: Acute vegetative mitral endocarditis. Septic infarction of myocardium. Recent infarction of spleen. Multiple hemorrhagic septic infarcts and multiple white infarcts of both kidneys. Multiple hemorrhagic septic infarcts of intestine. Multiple petechiae of the skin, pericardium, pleura and peritoneum. Cloudy swelling of the myocardium, liver and kidneys. Multiple focal necroses of the liver. Purulent bronchitis and bronchopneumonia. Abscess of the suprarenal medulla. Macula albida of the heart.

Bacteriology.—Blood culture on two occasions during life gave each time a pure culture of a gram-negative coccus which was not agglutinated by polyvalent antimeningococcus serum. At necropsy, cultures were taken from the heart's blood and spleen. Gram-negative diplococci were present in smears from both situations, but the cultures remained sterile, probably because of the use of old mediums. One of the mitral valve vegetations was removed, washed thoroughly in sterile salt solution, ground in a mortar with a small quantity of sterile saline, and a loopful spread on a blood agar plate. Numerous colonies, all of the same organisms, developed. These, at the end of twenty-four hours, were from 0.5 to 2 mm. in diameter; they were slightly irregular in outline but had smooth borders. They were raised, glistening and grayish, with a flattened surface. The colonies were dry and came off in scalelike masses. No pigment was formed, even after prolonged growth. The organism of these colonies was a gram-negative coccus, occurring singly and in pairs, which showed some variation in size. It was identical in morphology and in staining reactions with the coccus obtained in blood culture. A pure culture of the latter and a pure culture from one of the heart vegetation colonies were run through various mediums together, with the results given in Table 2.

TABLE 2.—RESULTS OF CULTURES

	Glucose	Saccharose	Maltose	Inulin	Mannite	Litmus Milk
Culture from blood during life....	Acid	Acid	Acid	0	0	0
Culture from heart valve vegetat'n.	Acid	Acid	Acid	0	0	0

On all solid mediums, the blood culture organism and that from the heart vegetation were characterized by their dry surface growth, which was luxuriant and came off in crustlike flakes. In broth, white, opaque, round masses developed at the surface and on the sides of the tube at the surface. Later the masses fell to the bottom, forming a heavy, cottonlike sediment, the supernatant fluid remaining clear. The bacteriologic diagnosis was *M. pharyngitidis-siccae* from both blood culture and heart vegetation.

COMMENT

In its clinical and pathologic features this case reproduces the conditions usually caused by a virulent streptococcus. A streptococcus could not, however, be cultivated from the blood during life or from the vegetations after death, and no streptococci could be found in the tissues. The only organism cultivated during life and from the necropsy was the gram-negative coccus described, and the blood culture organism and that from the vegetations were identical in every respect. Furthermore, the vegetations were made up of gram-negative cocci. The conclusion which it would appear necessary to draw is that this organism was the causative agent of the infection. Morphologically and culturally the coccus had the characteristics of *M. pharyngitidis-siccae*. Meningococcus and gonococcus, which would be more apt to produce the lesions found, can certainly be excluded. It was at first thought that the organism might be *M. catarrhalis*, but the sugar reactions excluded this also.

The beginning of an infection by such a normal, harmless inhabitant of the throat is difficult to explain. That such an organism should enter the blood stream directly and cause an acute endocarditis and a fatal infection appears improbable. The lungs were the seat of an acute purulent bronchitis with bronchopneumonia. This lesion, from its bronchial and peribronchial distribution, was apparently not hematogenous in origin, as were the lesions of the kidney, intestine, skin and serous membranes. The bronchopneumonia escaped detection during the course of the disease, none of the progress notes of the case indicating the presence of this condition. Although the clinical record states that on admission the lungs were clear, it is possible that the lesion may have been present at this time and may have escaped detection, since the islands of lung tissue involved were small. It would appear most probable, therefore, that the beginning of the infection was a bronchitis with bronchopneumonia, and that from the involved lung tissue the blood stream became invaded. With localization of the cocci on the mitral valves, the further course of the infection followed logically enough.

SUMMARY

A case of acute malignant vegetative mitral endocarditis in its clinical course and in its pathology simulated an endocarditis due to hemolytic streptococcus.

The causative organism was a gram-negative diplococcus, which culturally was *M. pharyngitidis-siccae*, ordinarily a nonpathogenic inhabitant of the throat.

The organism was obtained in pure culture from the blood on two occasions before death, and from the heart valve vegetations after death.

The inception of the infection was probably an acute purulent bronchitis with bronchopneumonia.

Low Blood Pressure and Oxygen Supply.—If hemorrhage complicates a low blood pressure, the critical level is higher than if no hemorrhage has occurred; thus, if an animal has lost 20 per cent. of its blood volume, the mean arterial pressure can not be lowered to 80 mm. without indications of an inadequate oxygen supply to the tissues.—*Review of War Surgery and Medicine.*

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 23, 1918

WAR GASES AND CHEMICAL WARFARE

The effective use of gases in warfare dates from the spring of 1915, when the Germans first used this hideous weapon on Canadian troops on the western front in France. The idea of the employment of poisonous gases against an enemy had been proposed to the British War Office many years ago, but the decision was reached, in accord with present-day considerations of humane procedure, that it should not be adopted.[1] The Teutonic return to barbaric methods compelled the Allies to adopt retaliatory measures; as a result, with hundreds of American as well as foreign chemists engaged in the chemical warfare service, the German plan of gas attack proved to be a veritable boomerang.

The first gas to be used against the forces of the Allied countries was the poisonous chlorin, which was released from cylinders in the front line of trenches. The gas cloud became a weapon by being rolled along the ground by the wind. For obvious reasons this uncertain mode of gas attack was soon replaced by the use of large shells filled with liquefied products. Several dozens of substances, not all of which are true gases, have already been employed in chemical warfare, so that few persons realize precisely what may be included in the expression "war gas." Lieut.-Col. Wilder D. Bancroft[2] has lately explained the import of this flexible term. The substance, he states, may be a liquid, a solid, a vapor or a true gas. It must, however, have some striking characteristics: it must be poisonous or produce tears (lacrimation); or it must give rise to nausea, sneezing or blisters, have a foul smell though otherwise harmless, or be a smoke with obscuring powers. Of course, it may have any or all of these properties combined.

Obviously a high degree of toxicity is a desideratum in those substances that are intended to damage the enemy by chemical rather than by mechanical means. Bancroft assures us that nowadays no one would consider as a toxic substance anything that did not kill dogs in thirty minutes at a concentration of 1 mg. per liter. It is effective concentration, he adds, that is overlooked by persons who suggest new gases or methods of using old ones. Lacrimatory substances should be effective at concentrations as low as 0.01 mg. per liter. The best are much better than this.

Gas warfare created entirely new problems for us in America. Means of defense against the new menace were the first to be provided. Foremost here was the production of suitable gas masks to meet each new sort of emergency. Then remedial measures for those afflicted had to be sought in what was practically an unexplored terrain of therapy. Thus there were created divisions of the service to study the pharmacology, pathology and therapeutics of poisonous gases. And our forces were not idle in the search of new weapons in this field. Hence a toxicologic section was organized under the leadership of Professor Loevenhart to test the deadly efficiency of the new discoveries. Such activities as the search for raw materials to produce novel products in enormous quantities, perhaps hundreds of tons, the invention of workable modes of manufacture and devices for loading and shipping shells and other containers, and the provision of protection for the workmen in the industrial plants have engaged the best talent of trained men. Science, recognized at length as a potent force and awakened to a realization of its duty, became rampant for success in outwitting the Hun.

1. This statement is made on the authority of Prof. J. S. Ames: The Trained Man of Science in War, Science, Oct. 25, 1918, p. 401.
2. Bancroft, W. D.: Chemical Warfare Research, Jour. Indust. and Engin. Chem., 1918, **10**, 785.

SOME FACTORS IN GASTRIC SECRETION

It is many years since the performance of gastric analysis, made possible by the successful introduction of the stomach tube into clinical diagnostic routine, has become an indispensable feature of medical practice. Strangely enough, the technic of this mode of examination has progressed far more rapidly during the intervening period than has the understanding of the fundamental physiologic functions on which the practice of gastric analysis is really based. Decade after decade has witnessed the collection of such facts as the varying acidities and enzymatic powers of collected specimens of gastric contents, while the problems of secretion, absorption and related factors have awaited more satisfactory solutions than those propounded by the usual textbooks of gastroenterology. The mechanism of the movements of the stomach have been elucidated to a far greater degree, thanks to the introduction of roentgenoscopic methods of investigation, than has the chemical physiology of the secretory phenomena.

The discovery of the existence of secretion-promoting hormones, or secretagogues, has paved the way to a clearer insight into long known facts. Thus it was appreciated even before the pioneer experiences of Pawlow that water is a gastric stimulant. Bergeim,

Rehfuss and Hawk,[1] who have devoted considerable attention to the response of the human stomach to water, report that in the average normal individual water produces fully as great stimulation as does the familiar Ewald test meal. In explanation of the underlying phenomenon, Pawlow had suggested that the stimulation is due to the prolonged and widespread contact of the water with the gastric mucosa. According to the more recent views of the University of Chicago school of physiologists, to whom, under the leadership of Carlson, so much of our present-day knowledge of the performances of the stomach is due, the older explanation is not tenable. Gastric secretion may occur even when water remains in contact with the mucosa for not more than one and one-half minutes. It seems more likely, therefore, that water washes traces of gastric secretagogues into the intestine, from which they are in turn absorbed so that they can act on the secretory glands by way of the blood; for the existence of a gastrin, or true chemical stimulant to secretion, can no longer be doubted.[2] Furthermore, that the dilution of the blood, as has been suggested, cannot be the controlling factor in promoting gastric secretion by water ingestion, is evident from the added demonstration that stimulation results even when practically no water is absorbed.[3]

The effectiveness of gastrin, preparations of which can be injected at will, in provoking gastric secretion, has made it possible to investigate the debated question of glandular fatigue. In the more careless conversations on clinical topics, one often hears of the importance of resting one or another of the secretory glands. The kidney cells and the cells of the gastric mucosa in particular are popularly supposed to require "rest," despite the undeniable fact that the secretion of urine is quite continuous or uninterrupted, as is the function of the heart or the respiratory center. The essential for their normally continued function is, of course, the orderly balance between destructive and constructive cellular processes, between anabolic and catabolic phases of metabolism, between reception of energy and oxygen and removal of chemical débris. Accordingly, it has been found impossible in the case of the gastric glands likewise to demonstrate a "fatigue" when they are stimulated by water or by gastrin for a period of from sixteen to twenty-six hours—surely a sufficient test. Hence, as to gastric glandular fatigue, says Ivy[3] in speaking of his new experiments at the University of Chicago, it is only reasonable to believe that so long as the normal gastric glands are supplied by the blood with the normal quality and quantity of constituents that form the gastric juice, no fatigue will be observed; but as soon as the blood fails to supply these necessary constituents, a change in the normal character of the gastric juice will occur. Even then, as Ivy adds, it cannot be said that the glands are fatigued; but rather they have only been deprived of the raw products necessary for their normal functioning. It is a somewhat unusual, yet unquestionably helpful point of view to interpret gastric secretory performance from the consideration of the blood supply rather than primarily the cells of the stomach or their innervation.

1 Bergeim, O.; Rehfuss, M., and Hawk, P. B.: Jour. Biol. Chem., 1914, **19**, 345.
2. Gastrin, editorial, THE JOURNAL A. M. A., Aug. 21, 1915, p. 722.
3. Ivy, A. C.: Contributions to the Physiology of the Stomach, XLVIII, Studies in Water Drinking, Am Jour. Physiol., 1918, **46**, 420.

MEDICAL DEMOBILIZATION

From the present outlook it would appear that in the demobilization of the Army, officers can, if qualified, join the Regular Corps or the Medical Reserve Corps, or they may be honorably discharged. The medical officers of the Army and Navy constitute a splendid body of some 35,000 physicians, well trained and well equipped. It would be a mistake — in fact, almost a crime — to permit these men to be completely detached from the Army and Navy and to be absorbed in civilian life. Hence it is to be hoped that the third group—those requesting honorable discharge —will be comparatively small.

As is well known, the old Medical Reserve Corps was not really an active organization. It consisted of some 1,450 physicians affiliated with the Medical Department of the Army, but practically in name only. The National Defense Act of 1916, in creating the Officers' Reserve Corps, provided that the old Medical Reserve Corps should cease to exist and be replaced by the Medical Section of the newly created Officers' Reserve Corps. The Medical Corps thus created would have been more vital—actually a functionating body, since the act provided for instruction to be given to members of the Reserve Corps for periods of fifteen days each calendar year, and for pay and allowance during the period of instruction. Longer periods than fifteen days could be utilized with the officer's consent. But before the new law went into effect, our country had entered the world war.

Conditions are now radically different from what they were in 1916. We now have a large Medical Corps composed of men who have served in camps of instruction, in cantonments, in the field, in hospitals and on board ships. They do not require training of the character contemplated by the National Defense Act. Undoubtedly, therefore, this act will be modified to meet new conditions. In fact, it is announced that the Secretary of War will shortly present to Congress an outline for such modification. It is hoped that the new legislation will provide a method by which officers who desire to do so can continue an intimate contact with the Army. This is certainly desirable so far as the medical officers are concerned, the great mass of whom made large sacrifices in order to serve

their country. They have become interested in army life and methods; they will not be content to be honorably discharged and thereby shelved. Perhaps the feeling is partly sentimental, but largely it is patriotic. Further, the occasion may arise when their services will be useful.

Undoubtedly the Medical Reserve Corps will be continued. But if it is, it might be desirable so to modify its organization as to provide for two classes of members: In one class would be those men within active military age who are now in the service and who have had sufficient military experience to make further training unnecessary. This group, therefore, would not require active training in the camps each year. In the other class would be those who have not had sufficient training and those newly commissioned. This would mean that the Officers' Reserve Corps would be composed of a trained group and a training group. However, the point we desire to emphasize above all others is: In the demobilization an opportunity should be given every medical man now in the service who is trained and physically qualified to retain some connection with the Army.

WAR EMERGENCY AND MEDICAL EDUCATION

At the time the United States entered the world war and until a few months ago, there were grounds for the belief that the war might extend over an indefinite number of years. That, indeed, was the only safe assumption the government could take in its plans for carrying on the war. Following the extension of the selective service regulations to include practically all men of college age, units of the Students' Army Training Corps were established in the approved colleges of arts and sciences. Later the War Department decided to establish such units also in the well recognized medical schools. Medical students were already enrolled in the Medical Enlisted Reserve Corps and were exempted from the draft, but were now ordered to be inducted into active service in the Students' Army Training Corps. The medical schools began at once to carry out the orders and to provide barracks, mess, drill space, etc. The government was to provide the uniforms, board and tuition of students transferred, and, in addition, to give the students the pay of private soldiers. In only about half of the medical schools, however, had the majority of students been transferred when the armistice was signed and further inductions into the Students' Army Training Corps stopped.

The man-power law extending the requirements of the selective service law was not enacted until August. This made it necessary for the Committee on Education and Special Training to work out the necessarily elaborate plans and carry them into effect in an incredibly short space of time. The medical schools had completed their teaching schedules, and many of them had begun their regular sessions before the program for the transfer of their classes to the Students' Army Training Corps was announced. The deans of the medical schools had, in fact, received no previous intimation regarding the radical nature of the changes finally ordered. The time-consuming routine of changing the students from a civilian to a military status — questionnaires, physical examinations, inductions, waiting in line, etc. — took up most of the students' time which otherwise would have been spent in study. The placing of six hours a week of military training into an already overcrowded schedule added to the confusion, which, in many instances, was further increased by a temporary conflict between the military officer who was supreme and educational officers. For example, drill hours were fixed at the time set for laboratory or clinical courses. Orders through military channels were finally sent to the commanding officers in medical schools where conflicts occurred to make the hours for military drill conform with the teaching schedules. Other difficulties, such as the assignment of students to guard duty, to raking leaves, to kitchen police duties and the like, were also settled by similar orders. Again, the giving up of quiet rooms at their homes or in other private dwellings and the living in barracks, where no provision had been made for study, took away from the students their opportunity for effective work. To cap the climax came the epidemic of influenza, which required the closing of many of the schools. As a consequence, during the time that has elapsed since the opening of the college session, little or no effective teaching has been done in many of the medical schools in which active military training had been established. The difficulty was not due so much to the military training as to the requirement that the students live in barracks and the failure to have the drill hours fit in with the class schedule.

The termination of the war takes away the necessity for further interfering with medical schools, and it is highly important that these institutions be restored to their prewar status at the earliest possible moment. The orders issued thus far by the War Department indicate a rapid demobilization, and it is probable that in both premedical and medical courses the Students' Army Training Corps will soon be discontinued. The medical colleges, therefore, should arrange to extend their sessions for a month or six weeks into next summer so as to make up most if not all of the time that has been lost. If this is not done, the students' ability to secure licenses after they have completed the medical course will be jeopardized. State boards generally have expressed their willingness to make liberal allowances to meet such educational measures as might be necessary in the national

emergency. Now that the emergency has disappeared, however, and there is still opportunity to make up the time lost, state boards should not be expected to relax the educational standards provided for in the practice acts. Efficient teaching in the medical schools should be at once restored.

Current Comment

FIRST AID TO OUR NAVAL FORCES

THE JOURNAL has received two copies of *The "T. B." (True Blue) Bulletin*, the "Official Publication of the United States Naval Hospital, Fort Lyon, Colo., Issued Every Saturday under the Direction of George H. Barber, Medical Director, U. S. N." It is a bright and cheery little eight-page paper, devoted to the local happenings at the Naval Hospital. Particularly interesting are some of the advertisements found in this paper. The first to attract attention is a picture of a blooming damsel with hair hanging down below her waist; our sailors are told: "Girls, try this. It doubles the beauty of your hair in a few moments." "This" was "Danderine." On the next page is a picture of an anxious mother looking at her little girl's tongue: "Look at the tongue, mother! If coated, it is a sure sign that your little one's stomach, liver and bowels need a gentle, thorough cleansing at once"—and "California Syrup of Figs" will do the trick. Those of our naval forces that feel the need of something in that line may infer that they can "Get New Kidneys" by taking "Gold Medal Haarlem Oil." A kindly faced woman, holding aloft a bottle of Lydia Pinkham's Vegetable Compound, tells the boys in blue that this wonderful preparation "restored my health after everything else had failed, when passing through change of life. There is nothing like it to overcome the trying symptoms." To the sailor who has worms, "Spohn's Compound" is recommended. Those who are suffering from "Acid-Stomach," or from "Indigestion, Gas, Up-set Stomach" can take their choice of "Eatonic" and "Pape's Diapepsin." Furthermore, the sailors are told that "Every woman wants Paxtine Antiseptic Powder for Personal Hygiene." It is "Recommended by Lydia E. Pinkham's Medicine Co." The interesting information is vouchsafed that "Women Sufferers May Need Swamp Root," and "If a woman is nervous or has dizzy spells, suffers from awful pains at regular or irregular intervals, she should turn to"—"Dr. Pierce's Favorite Prescription." Those in the Naval Hospital who fear the present epidemic are assured that "Spanish Influenza can be prevented easier than it can be cured. At the first sign of a shiver or sneeze take Hill's Cascara Bromid Quinin." Those who may be suffering from "Granulated Eyelids," Eczema, or "Baby Colds" should use "Murine," "Hunt's Salve," or "Piso's," as the case may be. A large advertisement, addressed presumably to the hospital authorities, gives instructions "How to Use Vick's Vaporub in Treating Spanish Influenza." Colorado, we believe, is dry, and in any case men in the service are subject to certain restrictions, but "For coughs, colds, effects of the grip and influenza"—"Try Peruna first." Altogether, one feels that in the United States Naval Hospital at Fort Lyon, there is no excuse for sickness.

POSSIBLE DANGERS IN EUCALYPTUS OIL AND RELATED PRODUCTS

The idiosyncrasy of an occasional person to therapeutic doses of familiar drugs is an admitted possibility but not always a recognized occurrence. Various types of hypersensitiveness are encountered sufficiently often to be impressed on the minds of the clinician as experiences that need to be reckoned with. Iodid rash may be cited in illustration. The less well appreciated instances, however, deserve special notice, particularly when they are attributable to commonly used remedial agents. Barker and Rowntree[1] have called attention to evidences of intoxication obtained with myrtol, a little known drug administered in the treatment of catarrhal conditions of the respiratory mucous membrane. This terpene-containing substance is obtained by distillation of the leaves of *Myrtus communis*, as eucalyptol, the chief constituent of eucalyptus oil, is prepared from another genus *Eucalyptus* of the same natural order of plants. A review of recorded cases of intoxication, unexpected and unaccountable or otherwise, with derivatives of these myrtaceous plants reveals the occurrence of two somewhat distinct syndromes. In the one, designated myrtogenic neuropathy by Barker and Rowntree, the nervous system primarily is affected; in the other form of intoxication, the myrtogenic dermatopathy, the skin chiefly is affected, with lesions that may be erythematous or urticarial in character. The fact that eucalyptus oil has come into more extended use again in connection with chloramin therapy, and that oils from some of the myrtaceous species appear to be used in proprietary products, such as cough drops, makes a reference to the possible dangers from them timely.

A SHORT SIGHTED DRUGGIST

Those druggists who believe that pharmacy is a profession rather than a trade have for some time urged physicians to prescribe official products rather than proprietary preparations, at least, in all cases where proprietary and official products are essentially similar. A recent experience reported to THE JOURNAL from New Haven, Conn., is worth recording. Our correspondent, who, while not a physician, is especially interested in THE JOURNAL'S propaganda, writes:

> I went to a nearby drug store and asked for twenty-five cents' worth of Liquor Antisepticus Alkalinus; I got one ounce! The druggist charged me fifteen cents an ounce, and ten cents for the container. Next time I fear I shall be forced to get Glycothymoline!

To penalize a man who calls for an official product, so as to drive him to ask for a "patent medicine" of the same general character, is both poor pharmacy and bad business.

1. Barker, L. F., and Rowntree, L. G.: Myrtol Poisoning; with Comments upon the Toxicity of Eucalyptus Oil and Myrtol in Human Beings and in Animals, Bull. Johns Hopkins Hosp., 1918, **29**, 215.

Medical Mobilization and the War

Commissioning of Physicians and All Promotions Stopped

The Surgeon-General's Office advises that since 10 o'clock of the morning of November 11, the War Department discontinued the commissioning of officers in the various corps of the Army, including physicians in the Medical Corps. This condition, it is stated, is in all probability permanent and favorable consideration will not be given to applications for commissions in the Medical Corps until further notice. At the same time favorable consideration on the recommendations for the promotion of officers was discontinued and no further promotions will be made until this embargo is modified.

Demobilization of the Army

In a press interview given by the Secretary of War, Nov. 15, 1918, it was stated that the first units to be demobilized will be the Development Battalions at the camps. These battalions are made up of men who are under physical requirements, or undergoing special drill or discipline to bring them into military value.

Every man who is discharged from the Army must have a complete physical examination for permanent record. This is the great task which now devolves on the Medical Department.

In an interview by Gen. Peyton March, November 16, it was stated that some 200,000 men will be mustered out within two weeks and then when the machine is in operation, some 30,000 men will be released daily. General March stated that under the present laws, every man who is discharged is entitled to wear his uniform for a period of three months.

Officers will be listed into various groups: those who wish to apply for commissions in the Regular Army; those who wish to put themselves into a class where they can be used for future military operations will be offered commissions in the Reserve Corps; all others will be given honorable discharges. General March stated that he had issued an order to all the staff corps stating that the discharge of officers and men must keep pace with cutting down of the work, and each department has been directed to submit a list of officers and men from time to time as they can be spared for discharge.

Medical Veterans of the World's War

There has been incorporated in the District of Columbia an organization to be known as the Medical Veterans of the World's War, and on Nov. 15, 1918, the following was recorded:

CERTIFICATE OF INCORPORATION

KNOW ALL MEN BY THESE PRESENTS, THAT WE, the undersigned, all of whom are citizens of the United States, and a majority of whom are residents of the District of Columbia, desiring to associate ourselves together to form an association under the provisions of the Code of Law for the District of Columbia, enacted by Congress and approved by the President of the United States, hereby certify that,

First: The name of the association shall be Medical Veterans of the World War.

Second: The term for which it is organized shall be perpetual.

Third: The particular business, objects and purpose of the association are: To perpetuate fellowship, prepare history, secure cooperation for the mutual benefit of the medical men who served in the War of Nations, 1914-1918, and for the mutual improvement and social intercouse of its members.

Fourth: The number of trustees who shall manage the affairs of the association for the first year of its existence, and until otherwise provided, shall be seven, who shall be the incorporators named below; and nothing herein contained shall prevent the association in increasing the number of trustees for any subsequent year of its existence.

IN WITNESS WHEREOF we, Frederick F. Russell, Edward R. Stitt, James C. Perry, James S. Easby-Smith, Victor C. Vaughan, William J. Mayo and Hubert Work, have hereunto subscribed our names and affixed our seals this fifteenth of November, A. D., 1918.

FREDERICK F. RUSSELL	VICTOR C. VAUGHAN
EDWARD R. STITT	WILLIAM J. MAYO
JAMES C. PERRY	HUBERT WORK
JAMES S. EASBY-SMITH	

District of Columbia, ss:

I, N. Curtis Lammond, a Notary Public in and for the district aforesaid, do hereby certify that Frederick F. Russell, Edward R. Stitt, James C. Perry, James S. Easby-Smith, Victor C. Vaughan, William J. Mayo and Hubert Work, parties to a certain certificate of incorporation bearing date on the 15th day of November A. D., 1918, and hereto annexed, personally appeared before me, in the district aforesaid, the said Frederick F. Russell, Edward R. Stitt, James C. Perry, James S. Easby-Smith, Victor C. Vaughan, William J. Mayo and Hubert Work, being personally well known to me to be the persons who executed the said certificate, and acknowledged the same to be their act and deed for the purposes therein named.

Given under my hand and notary seal this 15th day of November, A. D., 1918.

N. CURTIS LAMMOND, Notary Public.

The several federal departments and civilian organizations cooperating in the formation of this new association are as follows:

INCORPORATORS	REPRESENTING
Colonel Frederick F. Russell	The Surgeon-General of the Army
Rear Admiral Edward R. Stitt	The Surgeon-General of the Navy
Asst. Surg.-Gen. James C. Perry	The Surg.-Gen. of Pub. H. Service
Colonel James S. Easby-Smith	The Provost Marshal General
Colonel Victor C. Vaughan	The Assn. of Mil. Surgeons
Colonel William J. Mayo	The Am. College of Surgeons
Lieut.-Col. Hubert Work	The American Medical Association

It is proposed that the membership of the Medical Veterans of the World's War shall include (a) all medical officers who have served in the Medical Corps of the U. S. Army, the U. S. Navy, and the U. S. Public Health Service; (b) all physicians who have been officially appointed by the President, Provost Marshal-General, or the governors of states, and who have served as members of or medical examiners on Local, Medical Advisory and District Boards.

A temporary organization has been effected, and a committee appointed to draft a constitution and by-laws.

HUBERT WORK, President.
FREDERICK F. RUSSELL, Secretary.
Officers of the temporary organization.

Red Cross Mission to Siberia

We are informed by Dr. Rudis-Jicinsky that the American National Red Cross is sending a mission to Russia, Serbia and other Slavic lands. This mission, consisting of the following personnel, will sail about the first of December for Siberia:

Surgeons: Dr. J. Cepelka, 1900 Blue Island Ave., Chicago; Dr. Henry Otradovec, 455 W. 63d St., Chicago; Dr. Fred A. Sedlacek, 1270 S. 13th St., Omaha; Dr. Emil E. Tanner, 628 Chestnut St., Milwaukee.

Internists: Dr. Charles Neumann, 1328 W. 18th St., Chicago; Dr. V. Anyz, Blue Island Ave., Chicago.

Tuberculosis Specialists: Dr. A. J. Moravek, Rio, N. Y.; Dr. Karel B. Blahnik, 1901 W. 47th St., Chicago.

Roentgenologist: Dr. J. Rudis-Jicinsky, 1900 Blue Island Ave., Chicago.

Oculist: Dr. Georgia Dvorak Theobald, South Ashland Ave. and 18th St., Chicago.

Dentists: Dr. B. K. Simonek, 1669 Blue Island Ave., Chicago; Dr. Rudolph Klicka, 616 Chestnut St., Pittsburgh; Dr. Charles Stepanek, 3634 W. 26th St., Chicago; Dr. F. R. Vasko, 1270 S. 13th St., Omaha; Dr. J. A. Shambora, 907 G St., Washington, D. C.; Dr. A. Zadrazil, Second Ave. E., 107, Cedar Rapids, Iowa; Dr. Frank V. Nemecek, 342 E. 72d St., New York.

Laboratory technician and metabolist: J. Novak, 1867 Blue Island Ave., Chicago.

Pharmacist: O. J. Pelikan, 2601 S. Lawndale Ave., Chicago.

Influenza at the Camp Brooks Open Air Hospital

The State of Massachusetts has prepared for distribution in pamphlet form the report of Major Thomas F. Harrington, medical officer in charge, on the open air camp at Corey Hill, Brookline, for the treatment of influenza among the boys in training on the receiving ships *Meade, Cobb, Dingley* and *Austin* of the merchant marine service of the state. The

work at this camp has attracted attention on account of the adoption of the open air and sunshine method of caring for the patients and the employment of wire masks covered with gauze for every one coming in contact with the patients, for both of which features priority is claimed for this camp. A low incidence of pneumonia and other complications and a low death rate were among the results of this method of handling patients adopted in the hospital, as shown by the report.

The establishment of the hospital equipped to receive patients September 9, within seven hours after the work was started, and the actual receipt of thirty-eight patients at the end of that period is pointed to as an example of rapid and efficient work by the military authorities of the state and of the foresight of Governor McCall in providing equipment and supplies for such an emergency. The hospital, which was built of tents, except for portable buildings set up later for the staff and the nurses, was erected by companies of the state guard.

The medical staff consisted of the chief medical officer, commanding officer of the camp, eight physicians on night service and ten on day service, with two bacteriologists, chief nurse, head nurse for each ward, with one trained nurse, two nurse's aides and two orderlies for each. The wards consisted of thirteen tents, twelve to be occupied by one or two patients each, the thirteenth for the head ward nurse and for certain equipment to aid in carrying out prophylactic measures. All tents and the whole camp was properly drained, proper latrines and sewerage provided, water in sufficient supply, cooking facilities and an abundance of food and many luxuries arranged for from the start.

During the existence of the hospital, September 9 to October 12, there were 351 patients treated, representing the seriously ill among 1,200 men affected with influenza out of a group of more than 5,100 sailors, the deaths amounting to but thirty-six among the 351 patients.

The preventive measures may be summarized as follows: All persons coming in contact with patients to wear five layers of gauze on a wire mask over nose and mouth while near patients, gauze not to come in contact with nostrils or mouth and to be changed every two hours; hands of physicians, nurses and orderlies to be washed in bichlorid solution 1:1,000 after each contact with patients; separation of dishes and utensils used by patients and thorough boiling of same after each use; paper plates, drinking cups and napkins for pneumonia and meningitis patients; gloves and gowns, including head covering, for every one coming in contact with patients; prohibition of use of all common drinking cups, towels, etc.; thorough washing of hands of nurse before eating; gargle and mouth wash of Dobell's solution, etc.; application of argyrol ointment (10 per cent.) to nasal mucous membrane twice daily as a preventive against ear infection; use of paper bags with gauze, in place of sputum cups, to be pinned to pillow cases.

General measures were, outdoor treatment, with a maximum of sunshine and of fresh air day and night, with provision for warming the patient during the night by hot bricks, hot water bottles, extra blankets or paper sheets; four-hour feeding throughout the entire course of the fever; free catharsis by calomel, compound cathartic pill, sodium phosphate, magnesium sulphate, etc.

In the way of special medication were sponging for fever, coal tar preparations, acetylsalicylic acid, quinin, salicylates; for cough, brown mixture, Dover's powder, codein and expectorant mixture; for throat, mentholated throat tablets, Dobell's spray, red gum lozenges; for kidney irritation, hexamethylenamin, spirit of nitrous ether, milk; for nosebleed, plugging with cotton saturated with epinephrin solution; for heart, digipuratum, digifolin, camphor in oil, strychnin; for pneumonia, cotton or paper jackets, forced feeding, calcium iodid, codein, morphin, atropin, bromids, expectorant mixture and oxygen inhalation; for delirium, bromids, codein, ipecac; for meningitis, Flexner's serum; for arthritis, sodium salicylate; for convalescence, tonics of iron, arsenic and strychnin.

The preventive and medication measures as employed in the camp emphasize that the rigid enforcement of prevention guarantees protection to those brought in intimate contact with infected persons, and that drug treatment is secondary in value to forced feeding, warmth and an abundance of fresh air and sunshine.

On the subject of mask protection it is said that among a personnel of 15 physicians, 45 nurses and aids, 20 sanitary corps men and 74 sailors acting as orderlies, many of whom, especially among the latter, were changed frequently, only six nurses and two orderlies developed influenza, and it was possible to trace exposure outside the camp in five of these cases.

The term influenza-pneumonia is suggested for the type of pneumonia associated with the epidemic. It is distinctly a septicemia, and few cases occurred in which there was a positive, frank pneumonia of a specific type. There were 122 cases diagnosed either clinically or bacteriologically as pneumonia, divided roughly into 56 lobar and 66 bronchial. The mortality was 29 out of 36 deaths; a percentage of 10.16 pneumonics among 1,200 cases of influenza, and a mortality of 8.26 per cent. from pneumonia among the 351 patients treated. The percentage of pneumonia among the patients received at the hospital was 34.7.

COMMISSIONS OFFERED AND ORDERS TO DUTY ON ACCEPTANCE

[NOTE.—As stated elsewhere the issuing of all commissions was stopped, November 11, at 10 a. m. Therefore many of the commissions here indicated as offered may not have been received.—ED.]

Alabama

To Camp Beauregard, La., Lieut. E. H. COUCH, Union Grove.
To Camp McClellan, Ala., Lieut. R. C. PARTLOW, Tuscaloosa.
To Camp Meade, Md., for special instruction, Lieut. G. L. WOOD, Haleburg.
To Fort Oglethorpe for instruction, Lieuts. L. A. KILPATRICK, Altoona; C. W. JONES, Boothton; G. C. REYNOLDS, Brundidge; C. N. LACEY, Demopolis; H. S. MUSTARD, Florence; R. L. HILL, Lynn; E. W. GRAY, Sheffield.
To report to the commanding general, Southeastern Department, Lieut. M. T. C. SCOTT, Headland.

Alaska

To Camp Dix, N. J., base hospital, for instruction, Capt. C. W. WELCH, Candle.
To Fort Riley for instruction, Lieut. A. LOVAS, Anchorage.

Arizona

To Camp Cody, N. M., Lieut. S. B. NORRIS, Tucson. *To examine the command* for nervous and mental diseases, Capt. P. B. NEWCOMB, Phoenix.
To Fort Riley for instruction, Lieuts. K. M. GILBERT, Chandler; H. C. MOORE, Silverbell.
To report to the commanding general, Central Department, Capt. L. E. SCHOCH, Phoenix.

Arkansas

To Camp Joseph E. Johnston, Fla., Lieut. W. P. MOORE, Little Rock.
To Camp Pike, Ark., Lieut. E. A. PURDUM, Hot Springs.
To Fort Oglethorpe for instruction, Capt. W. L. KITCHENS, Stamps, Lieut. W. E. JONES, Paris.
To Fort Riley, Lieut. J. E. JOHNSON, Fort Smith. For instruction, Lieuts. M. S. CRAIG, Batesville; R. N. MANLEY, Clarksville; E. D. ERWIN, Monticello; H. A. MURPHY, Wesson.

California

To Arcadia, Calif., Lieut. E. G. MATTISON, Pasadena.
To Camp Dodge, Iowa, base hospital, for instruction, Major C. E. PHILLIPS, Los Angeles.
To Camp Fremont, Calif., Capt. A. C. MATHEWS, Napa. Base hospital, Capt. G. W. BROWN, Los Angeles. Base hospital, for instruction, Capt. F. CUTTLE, Hanford; Lieut. J. J. O'BRIEN, Los Angeles.
To Camp Kearney, Calif., Capts. R. W. BUCKNAM, E. E. SHERRARD, Los Angeles; J. D. BALL, Oakland; M. W. HAWORTH, Sacramento; Lieuts. E. M. GRIMMER, Irvington; C. W. SHIREY, Lankershim; S. J. BECKA, J. F. HOLLERAN, O. I. TOWER, Los Angeles; R. E. MAXWELL, Randsburg; J. W. BROWNLIE, Vallejo. Base hospital, Lieut. E. E. PATERSON, Oakland. Base hospital, for instruction, Capt. C. T. ROSSON, Hanford; P. H. PYLES, Los Angeles; W. S. PORTER, Oakland; S. J. ONESTI, H. O. VON DER LIETH, San Francisco; D. A. BEATTIE, San Jose.
To Camp Lewis, Wash., Lieut. C. F. PAWLICKI, San Francisco.
To Camp Pike, Ark., Capt. H. PARTRIDGE, San Francisco.
To Denver, Colo., Lieut. H. C. BUSH, Colfax.
To Fort Oglethorpe for instruction, Capts. G. F. DOYLE, Bishop; A. SOILAND, Los Angeles; Lieuts. I. W. HIGGINS, Live Oak; H. B. MISCH, J. G. WARE, Los Angeles; H. A. ULVIN, San Francisco.
To Fort Riley for instruction, Lieuts. H. C. MAY, H. W. SPIERS, Los Angeles.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. W. T. HARRISON, H. J. WRIGHT, San Francisco.
To report to the commanding general, Western Department, Capt. H. S. KERGAN, Oakland; Lieuts. H. DECKER, Beckwith; E. H. COLEMAN, Los Altos; D. A. THIEMS, Los Angeles; A. C. SMITH, G. E. P. WALTON, Oakland; P. G. YOUNG, Sacramento; F. E. FRATES, H. RIGHETTI, C. E. TAYLOR, San Francisco; H. LEVIN, San Pedro; C. B. LAUGHLIN, Sausalito.
To San Diego, Calif., Rockwell Field, Lieut. C. R. BLAKE, Richmond.
To San Francisco, Calif., Capt. W. C. FINCH, Los Angeles. Letterman General Hospital, Capts. F. M. MIKLES, Long Beach; A. M. LESEM, San Diego; H. C. McCLENAHAN, R. F. TOMLINSON, San Francisco; L. H. FULLER, Van Nuys.

Colorado

To Army Medical School, Lieut. R. M. BOWEN, Denver.
To Camp Bowie, Texas, base hospital, for instruction, Capt. W. T. H. BAKER, Pueblo.
To Denver, Colo., Lieut. M. I. MARSHAK, Edgewater.
To Fort Logan, Colo., Lieut. M. J. KROHN, Denver.

To Fort Oglethorpe for instruction, Capts. A. J. HETHERINGTON, Boulder; O. S. FOWLER, Lieut. H. N. KROHN, Denver.
To Fort Riley, Lieut. D. O. GROVES, Calhan. For instruction, Capts. J. O. HARDY, Las Animas; J. G. McFADDEN, Loveland; Lieuts. P. M. LENNOX, Colorado Springs; F. P. N. VAN LANDEGHEM, Fleming.
To Fort Sill, Okla., Capt. A. S. TAUSSIG, Denver.

Connecticut

To Camp Dix, N. J., base hospital, for instruction, Capt. F. G. BECK, New Haven.
To Camp Meade, Md., Lieut. J. F. SHEA, Bridgeport.
To Camp Wadsworth, S. C., Lieut. H. S. SCHULZ, Bridgeport.
To Fort Oglethorpe for instruction, Capts. J. D. GOLD, Bridgeport; W. H. VAN STRANDER, Hartford; W. P. LANG, New Haven; Lieuts. R. L. DRESEL, D. W. TRACY, Hartford; F. F. BUDD, New Haven.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. T. H. GALLIVAN, Hartford.

Delaware

To Fort Oglethorpe for instruction, Lieut. G. L. DOUGHERTY, Wilmington.

District of Columbia

To Army Medical School, Lieut. N. P. NELSON, Washington.
To Camp Gordon, Ga., base hospital, Lieut. L. E. PAYNE, Washington.
To Fort Oglethorpe for instruction, Lieuts. W. E. FRANK, C. A. SIMPSON, Washington.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. E. J. KEMPF, Washington.
To Newport News, Va., Major W. C. RUCKER, Washington.

Florida

To Camp Joseph E. Johnston, Fla., base hospital, Capt. C. BRADY, Leesburg; Lieut. G. A. LASSMAN, Tampa.
To Camp Shelby, Miss., Lieut. G. H. BENTON, Miami.
To Fort Oglethorpe for instruction, Capt. C. L. HYATT, Kissimmee; Lieuts. C. J. BAUMGARTNER, Jacksonville; G. H. BRANTLEY, W. L. NUTTER, Lake Worth.
To report to the governor of Florida as medical aide, Capt. H. E. PALMER, Tallahassee.

Georgia

To Camp Jackson, S. C., Lieuts. B. M. CLINE, Milledgeville; A. H. DELLINGER, Silver Creek. Base hospital, Capt. W. C. PUMPELLY, Macon.
To Fort Oglethorpe for instruction, Lieuts. R. L. BLACKMON, G. W. FULLER, R. J. SPEIR, Atlanta; C. A. STEVENSON, Camilla; R. J. POWER, Roswell; J. M. SMITH, Sharps Spur.

Hawaii

To Hawaiian Department, Capt. W. OSMERS, Wailuku.

Idaho

To Camp Wadsworth, S. C., base hospital, Lieut. W. E. HUNTER, Pocatello.
To Fort Oglethorpe for instruction, Lieut. O. E. BLOOM, Hill City.
To Fort Riley, Capt. M. McKINNIN, Sandpoint. For instruction, Capt. V. R. KILLEN, Rupert; Lieuts. F. C. GIBSON, Bovill; F. E. BOUCHER, St. Anthony.
To report to the commanding general, Western Department, Lieut. C. D. WEAVER, Twin Falls.

Illinois

To Army Medical School, Lieut. W. H. CUNNINGHAM, Rockford.
To Camp Custer, Mich., base hospital, Capts. J. J. KILLEEN, Chicago; D. M. KEITH, Rockford. Base hospital, for instruction, Capts. J. L. BAER, Chicago; K. F. SNYDER, Freeport; C. W. POORMAN, Oak Park.
To Camp Gordon, Ga., base hospital, for instruction, Lieut. T. M. EGAN, F. A. ZIBELMAN, Chicago.
To Camp Grant, Ill., base hospital, Major G. E. SHAMBAUGH, Chicago.
To Camp Jackson, S. C., base hospital, Major A. R. EDWARDS, Capt. N. SCHOOLMAN, Chicago.
To Camp Joseph E. Johnston, Fla., Lieut. M. McKELLAR, Chicago.
To Camp McClellan, Ala., Capt. F. J. SULLIVAN, Kankakee.
To Camp Pike, Ark., Lieut. D. D. CAMPBELL, Chicago.
To Camp Shelby, Miss., Lieut. W. A. McROBERTS, Joliet.
To Camp Sherman, Ohio, base hospital, for instruction, Capt. J. J. MONAHAN, Chicago.
To Camp Zachary Taylor, Ky., base hospital, Capts. J. S. NAGEL, Chicago; L. E. SCHWARZ, Highland Park.
To Fort Oglethorpe for instruction, Capts. I. FRANK, M. JAMPOLIS, C. M. McKENNA, Chicago; Z. V. KIMBALL, Hillsboro; F. A. RYDEN, Plainfield; Lieuts. R. R. McLALLEN, Aurora; F. G. BUWATCHECK, Belleville; J. H. PITTMAN, Camp Point; M. H. WHITLOCK, Canton; J. H. APPLEMAN, R. A. ARENS, H. E. BRYANT, W. A. GROSS, D. H. HOWELL, M. I. KAPLAN, M. J. KELLY, Z. J. LITTLE, W. W. McCABE, A. L. MORRIS, J. M. MURPHY, E. K. NILES, M. V. H. PUCKEY, J. M. SHAW, A. E. SMITH, A. H. WADDINGTON, H. E. WALSH, B. WILKINSON, Chicago; E. H. LANE, East St. Louis; P. M. MILLER, German Valley; K. D. SANDERS, Jonesboro; J. W. KALES, Jr., Kirkland; G. J. DIESEL, Millstadt; R. H. STEWART, Victoria; J. W. WELIS, Waltonville; P. A. ISHERWOOD, West Chicago; N. L. SEELYE, Woodstock.
To Fort Riley, Lieut. A. V. CAPEL, Shawneetown. For instruction, Capts. A. G. BOSLER, C. F. SAWYER, Chicago; A. W. BRADFORD, Lacon; Lieuts. G. G. O'CONNELL, V. L. SHEETS, Chicago; H. F. KILLENE, W. C. SPANNAGEL, East St. Louis; R. OLDFIELD, Oak Park.
To Fort Sheridan, Ill., Lieut. E. T. MURPHY, Chicago.
To Lakewood, N. J., Lieut. C. M. BACON, Chicago. For instruction, Lieut. Y. N. LEVINSON, Chicago.
To New York City, Neurological Institute, for intensive training, Lieut. A. W. LA FORGE, Chicago.
To report to the commanding general, Central Department, Capts. W. N. SENN, O. M. STEFFENSON, M. A. WEISSKOPF, Chicago; W. C. ISOM, Renault; Lieuts. H. O. WILLIAMS, Centralia; J. L. O'TRUDEL, Chicago.

Indiana

To Army Medical School, Lieut. E. C. GARBER, Dunkirk.
To Camp Custer, Mich., Lieut. G. C. PRITCHETT, Muncie. Base hospital, for instruction, Capts. O. SMILEY, Indianapolis; F. H. JETT, Terre Haute.
To Camp Gordon, Ga., base hospital, for instruction, Lieut. D. T. MILLER, Terre Haute.
To Camp Grant, Ill., Lieut. J. W. CLUBB, Blanford.
To Camp Pike, Ark., Capt. J. R. CROWDER, Sullivan.
To Camp Shelby, Miss., base hospital, for instruction, Lieut. A. A. RANG, Washington.
To Camp Sherman, Ohio, base hospital, Capt. J. D. MILLER, Indianapolis. *To examine the command* for nervous and mental diseases, Capt. O. EVERMAN, Indianapolis.
To Camp Zachary Taylor, Ky., Lieut. H. L. BASS, Elberfield.
To Fort Benjamin Harrison, Lieut. J. H. WRORK, Shelburn.
To Fort Oglethorpe for instruction, Capts. M. T. McCARTY, Frankfort; J. M. BOYER, Indianapolis; J. H. COOK, K. F. WILLIEN, Terre Haute; Lieuts. W. A. SAMUELL, Butler; H. E. GLOCK, Fort Wayne; F. W. DUNN, Gaston; D. W. WEAVER, Greensburg; E. W. BURRIS, Indianapolis; W. C. MATHEWS, Kentland; C. H. PERRY, Lewis Creek; W. C. SHERWOOD, Mitchell; G. G. WIMMER, Mount Etna; J. A. TURNER, Nashville; W. A. JOHNSON, Perrysville; W. F. PAYNE, Prairie Creek; A. P. RAINIER, Remington; H. O. SEIPEL, Valpariaso; C. E. STEWART, Vincennes.
To Fort Riley for instruction, Lieut. C. S. BAKER, Evansville.
To New Haven, Conn., Capt. H. F. MITCHELL, South Bend.

Iowa

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Lieut. J. T. SLATTERY, Dunlap.
To Camp Dodge, Iowa, Lieut. J. W. LAIRD, Mount Pleasant. Base hospital, for instruction, Lieut. A. M. LOES, Dubuque.
To Camp Pike, Ark., Lieut. M. E. KEMP, Sigourney.
To Camp Travis, Texas, base hospital, for instruction, Capt. R. M. WATERS, Sioux City.
To Fort Oglethorpe, Lieut. J. MAXWELL, Gibson. For instruction, Capts. F. S. HOUGH, Sibley; G. S. BROWNING, Sioux City; Lieuts. S. W. HUSTON, Crawfordsville; A. O. WIRSIG, Iowa City; C. D. MERCER, West Union.
To Fort Riley, Capt. F. E. V. SHORE, Des Moines. For instruction, Capts. W. A. STOECKS, Davenport; L. P. RICH, Fredericksburg; S. B. DEPREE, Sioux City; C. W. McLAUGHLIN, Washington; Lieuts. F. P. CAULEY, Anthea; J. H. VAN DYKE, Cedar Falls; H. J. PATCHIN, Denmark; H. D. WEST, Des Moines; R. L. FEIGHTNER, Fort Madison; A. W. LUNDVICK, Gowrie; R. W. STOBER, Greene; F. R. CUTLER, Guttenberg; P. I. DAHL, Inwood.

Kansas

To Camp Custer, Mich., base hospital, for instruction, Capt. J. E. FOLTZ, Hutchinson.
To Fort Riley, base hospital, for instruction, Lieut. E. A. DAVIS, Chanute. For instruction, Capts. H. P. MERA, Jr., Abilene; G. C. McCORMICK, Coffeyville; R. L. FERGUSON, Marquette; C. E. SHAFFER, Moline; Lieuts. L. O. FORNEY, Byers; W. E. ASHBY, Delphos; W. A. SMILEY, Junction City; D. R. STERETT, Leavenworth; G. J. GOODSHEELER, Marion; H. M. MAYER, Peabody; L. A. SUTTER, Wichita.

Kentucky

To Camp Sherman, Ala., base hospital, Capt. C. W. DOWDEN, Louisville.
To Camp Zachary Taylor, Ky., Lieut. J. F. DUNN, Arlington.
To Fort Oglethorpe for instruction, Capts. L. T. MINISH, Frankfort; W. W. WILSON, Henderson; R. W. LONG, Madisonville; J. H. HENDREN, Pineville; B. C. BACH, Whitesburg; Lieuts. S. W. CROWE, Centertown; W. S. STUCKY, Lexington; C. S. GOODMAN, E. L. IRWIN, Louisville; P. A. HART, Murray; J. B. ACREE, Paducah; J. F. SMITH, Redbush.
To Fort Riley for instruction, Lieut. J. H. HOWE, Rocky Hill Station.
To Frankfort, Ky., Major T. R. WELCH, Nicholasville.
To New Haven, Conn., Capt. L. RYANS, Louisville; Lieut. E. L. STRADER, Waverley Hills.
To report to the commanding general, Central Department, Capt. W. A. BOLLING, Louisville.

Louisiana

To Camp Beauregard, La., Lieut. A. A. PRAY, New Orleans.
To Camp Shelby, Miss., base hospital, for instruction, Lieut. L. LEVY, New Orleans.
To Fort Oglethorpe for instruction, Capt. E. S. HATCH, New Orleans; Lieuts. L. M. BEUDREAUX, Abbeville; E. M. WILLIAMS, Franklin; E. C. SIMONTON, Jonesboro; C. P. GRAY, Monroe; M. H. PHELPS, Natchitoches; D. HYMAN, A. M. POWE, New Orleans.

Maine

To Camp Upton, N. Y., Lieut. J. F. COX, Bangor. Base hospital, for instruction, Capt. W. H. HAWKINS, Lewiston.
To Fort Oglethorpe for instruction, Lieut. B. B. FOSTER, Portland.
To Plattsburg Barracks, N. Y., Capt. P. H. S. VAUGHAN, Yarmouthville.

Maryland

To Camp Sherman, Ohio, Capt. H. M. FITZHUGH, Westminster.
To Fort Oglethorpe for instruction, Lieuts. M. A. VARZHABEDIAN, B. J. WESS, Baltimore; G. E. LANCASTER, Bowie.
To report to the comanding general, Eastern Department, Lieut. J. C. STANSBURY, Baltimore.

Massachusetts

To Army Medical School, Lieuts. G. W. HEASLIP, Lynn; J. F. COLLINS, Marlboro; A. J. PETER, Newburyport; F. P. BOYD, Springfield.
To Camp Devens, Mass., base hospital, Lieut. B. HOLBROOK, Waltham. Base hospital, for instruction, Lieuts. W. J. TAYLOR, East Dedham; J. H. KERRIGAN, Stoneham.
To Camp Gordon, Ga., base hospital, Capt. W. H. REGAN, Cambridge.
To Camp Jackson, S. C., base hospital, Major H. A. CHRISTIAN, Boston.
To Camp Meade, Md., for special instruction, Lieut. H. L. SHAPLEIGH, Boston.

To Camp Shelby, Miss., base hospital, Capt. C. B. FAUNCE, Boston.
To Camp Upton, N. Y., Lieut. E. G. BAUM Natick. Base hospital, for instruction, Capts. C. P. SYLVESTER, O. G. TINKHAM, Boston; Lieut. C. L. CURTIS, Salem.
To Camp Wadsworth, S. C., Capt. F. M. STILES, Waltham.
To East Norfolk, Mass., Major I. H. NEFF, East Norfolk.
To Fort Leavenworth, Kan., Capt. G. G. FORNALD, Concord Junction.
To Fort Oglethorpe for instruction, Capts. J. D. CLARK, T. J. SCANLAN, Boston; G. H. FOSS, Springfield; Lieuts. J. H. BLAISDELL, J. F. MAGUIRE, G. E. PERKINS, R. A. SADLER, H. E. SETTLE, H. L. WALLACE, Boston; F. L. JONES, Chatham; H. L. BOLEN, Fall River; M. A. STRANMER, Jamaica Plain; J. D. CHRISTIE, Littleton; E. S. O'KEEFE, Lynn; L. W. SALVIN, Roxbury; C. ARONSON, Salem; F. SHAW, Somerville; J. F. GAYLORD, W. E. MULCAHY, Springfield; G. C. PROCTOR, Wellesley Hills; J. E. PELLETIER, Worcester.
To New Haven, Conn., Lieut. W. B. HOWES, Framingham.
To Plattsburg, N. Y., Capt. A. F. RIGGS, Stockbridge.
To report to the commanding general, Northeastern Department, Major E. O. OTIS, Boston; Lieuts. C. A. BATES, Ashburnham; R. H. THOMPSON, Malden.

Michigan

To Camp Custer, Mich., base hospital, Lieut. F. J. ROBERTS, Detroit. Base hospital, for instruction, Capts. A. C. BUTTERFIELD, Grand Rapids; E. L. THIRLBY, Traverse City; Lieut. J. R. HANSEN, Greenville. For instruction, Major C. G. PARNALL, Jackson.
To Camp Grant, Ill., Lieut. J. COOPERSTEIN, Flint.
To Camp Pike, Ark., base hospital, for instruction, Capt. J. A. KIMZEY, Detroit.
To Camp Shelby, Miss., Lieut. A. G. KERSTEN, Detroit.
To Camp Zachary Taylor, Ky., base hospital, for instruction, Lieut. W. L. FINTON, Jackson.
To Fort Oglethorpe for instruction, Capts. E. K. HERDMAN, Ann Arbor; C. C. McCLELLAND, H. W. PLAGGEMEYER, Detroit; L. L. WILLOUGHBY, Flint; J. M. WRIGHT, Grand Rapids; Lieuts. V. H. DUMOND, Bay City; M. A. FECHEIMER, N. A. MALLORY, F. L. MILLIGAN, C. T. ROOT, L. E. STEPHENSON, W. P. WOODWORTH, R. L. ZIMMERMAN, Detroit; D. S. JICKLING, Flint; R. H. SNOWDEN, Galien; R. R. EATON, Grand Rapids; H. B. WEAVER, Greenville; J. H. CHARTERS, Houghton; D. B. MARSH, W. R. SNOW, Jackson; F. H. SHORTS, Kent City; R. C. ALLEN, St. Joseph.
To Fort Riley, Lieut. W. F. KAHL, Detroit.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. W. A. DEFNET, Detroit.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. C. P. DRURY, Marquette.
To report to the commanding general, Central Department, Capt. T. C. IRWIN, Grand Rapids.

Minnesota

To Camp Custer, Mich., Lieut. C. A. BOREEN, Minneapolis.
To Camp Grant, Ill., base hospital, Lieut. J. A. WINTER, Duluth. Base hospital, for instruction, Lieuts. N. M. SMITH, Minneapolis; T. B. REEVES, Rochester.
To Camp Pike, Ark., Lieut. C. G. RICHARDS, Rochester.
To Camp Shelby, Miss., Capt. A. P. LOMMEN, Lansboro.
To Fort Oglethorpe for instruction, Capt. A. P. LOMMEN, Lanesboro; Lieuts. J. S. REYNOLDS, W. L. TAFT, Minneapolis; L. R. LIMA, Montevideo; C. A. McDONALD, Virginia.
To Fort Riley, Lieut. T. W. HOVORKA, St. Cloud. For instruction, Capt. Z. E. HOUSE, Cass Lake; Lieuts. O. DAIGNAULT, Benson; L. HARRIMAN, Howard Lake; S. H. OLSEN, Milaca; H. VAN DE ERVE, Minneapolis; A. G. BEYER, Red Wing; A. D. WHITING, St. Cloud.

Mississippi

To Camp Shelby, Miss., base hospital, for instruction, Lieut. S. L. STEPHENSON, Marks.
To Camp Travis, Texas, Lieut. S. W. PURIFOY, Yazoo City.
To Fort Oglethorpe for instruction, Lieuts. J. T. GOOGE, Booneville; R. N. WHITFIELD, Florence; E. D. KEMP, Highpoint; F. Z. GOSS, Kiln; M. BEEKMAN, Natchez.

Missouri

To Camp Beauregard, La., base hospital, for instruction, Capt. C. W. RUSSELL, Springfield.
To Camp Dodge, Iowa, base hospital, Lieut. J. C. LEYSER, Kansas City. Base hospital, for instruction, Capt. H. L. MONTAGUE, St. Louis.
To Camp Grant, Ill., Lieut. H. H. KRAMOLOWSKY, St. Louis.
To Camp Shelby, Miss., Lieut. C. SWITZER, Kansas City.
To Camp Sheridan, Ala., base hospital, Lieut. H. E. LIVINGSTONE, St. Louis.
To Camp Travis, Texas, base hospital, for instruction, Capt. E. T. URBAN, St. Louis.
To Camp Zachary Taylor, Ky., Lieut. H. S. MARSH, Kansas City.
To Fort Oglethorpe for instruction, Capts. E. HAFFNER, Hermann; B. G. HAMILTON, Kansas City; M. S. GRAY, St. Joseph; L. H. BEHRONS, St. Louis; Lieuts. P. J. ROSS, Grant City; B. BELOVE, J. FRISCHER, Kansas City.
To Fort Riley for instruction, Major B. A. LIEBERMAN, Kansas City; Capt. H. L. WILBUR, Granby; Lieuts. W. A. ROBERTSON, Allendale; J. B. STEINMETZ, Blackwell; M. M. RUSSELL, Chillicothe; E. G. GROVE, Fairfield; S. M. PARRISH, Fayette; R. R. ROBINSON, Hallsville; A. R. WILSEY, Hurdland; H. B. HARDMAN, Joplin; M. M. MILLER, Kansas City; J. R. HAMLIN, N. O. OWENS, La Grange; G. M. RAGSDALE, Paris; A. R. REMLEY, Pattensburg; B. S. POWELL, Princeton; W. F. BOTTS, Santa Fe; G. W. REEVES, Steelville; S. S. COX, Wellsville; E. C. SNAVELY, Zora.
To Plattsburg Barracks, N. Y., Capt. G. B. LEMMON, Springfield.
To report to the commanding general, Central Department, Lieut. L. B. NORTHCUTT, Washburn.

Montana

To Camp Dodge, Iowa, base hospital, for instruction, Capt. W. P. SMITH, Columbus.
To Camp Meade, Md., Lieut. G. F. TIDYMAN, Valier.
To Fort Oglethorpe for instruction, Capt. J. A. LAMB, Kalispell.
To Fort Riley for instruction, Lieuts. C. F. COULTER, Great Falls; E. W. TRAINER, Butte; A. A. FUSON, Hingham; R. W. APPELMAN, Lavina; C. D. POWELL, Valier.

Nebraska

To Camp Dodge, Iowa, base hospital, Capt. L. B. VAN CAMP, Omaha.
To Fort Riley for instruction, Capts. J. B. HOSKINS, Allen; G. H. MORRIS, Oshkosh; R. S. MITCHELL, Red Cloud; G. A. HARRIS, Valley; F. B. PATTERSON, Dodge; J. M. PACKER, Memphis; E. P. MURDOCK, Ogallala; D. W. VANDERHOOF, Sutherland; R. H. MORSE, Wisner.
To report to the commanding general, Central Department, Lieut. W. A. STALEY, Holbrook.

Nevada

To Fort Riley for instruction, Lieut. H. M. McINTIRE, East Ely.

New Hampshire

To Army Medical School, Lieut. A. W. MOORE, Loudon.
To Fort Oglethorpe for instruction, Lieut. B. L. FREEMAN, Suncook.
To report to the governor of New Hampshire, Capt. S. S. DEARBORN, Nashua.

New Jersey

To Army Medical School, Lieut. H. G. McBRIDE, Newark.
To Camp Devens, Mass., base hospital, for instruction, Lieut. H. C. MUNRO, Pleasantville.
To Camp Dix, N. J., base hospital, Capt. J. A. WHEELER, Jersey City.
To Camp Meade, Md., Capt. W. U. KRUTS, Asbury Park; Lieut. D. D. REALS, Newark. Base hospital, for instruction, Capt. W. W. MacALISTER, Paterson.
To Fort Oglethorpe for instruction, Capts. I. KAUFMAN, S. M. RUBINOW, Newark; Lieuts. L. P. STEINHART, Atlantic City; S. MESSINGER, Chrome; J. P. INSLEE, Palisades; J. N. FUCHS, V. LAEHDERFAN, C. F. ROUPP, Trenton.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capts. H. E. MATHEWS, D. W. POOR, Orange.

New Mexico

To Camp Cody, N. M., Lieut. F. R. HALSTEAD, Roswell. Base hospital, for instruction, Capt. H. A. MILLER, Clovis.
To Fort Riley for instruction, Lieut. J. M. WELLMAN, Des Moines.

New York

To Army Medical School, Lieuts. D. W. PARK, Brooklyn; W. F. GALLIVAN, Buffalo; A. M. HEALEY, New York.
To Camp A. A. Humphreys, Va., base hospital, for instruction, Lieut. R. J. PEARSON, Buffalo. *To examine the command* for nervous and mental diseases, Capt. W. C. DEAN, Brooklyn.
To Camp Devens, Mass., base hospital, Capt. G. H. ROCKWELL, Syracuse.
To Camp Dix, N. J., Lieut. D. WOLIN, Rochester. Base hospital, Capts. J. SAMENFELD, Brooklyn; T. BAILEY, M. D. LEDERMAN, Lieut. R. H. G. LAUB, New York. Base hospital, for instruction, Lieut. J. J. BURKE, Schenectady.
To Camp Greene, N. C., base hospital, Capt. H. W. COWPER, Buffalo.
To Camp Jackson, S. C., Capt. D. E. HOAG, New York.
To Camp Lee, Va., Lieuts. J. J. YORK, Schenectady. N. J. CONAN, Syracuse.
To Camp McClellan, Ala., to examine the command for nervous and mental diseases, Capt. J. L. ECKEL, Buffalo.
To Camp Meade, Md., Capts. R. KIMPTON, Binghamton; E. H. HUTTON, Corning; Lieuts. J. YAMPOLSKY, New York; I. V. O. DECKER, Troy. For instruction, Lieuts. F. V. VINSKI, Brooklyn; A. A. GERESOLA, Fort Slocum.
To Camp Sevier, S. C., base hospital, Lieut. J. J. MADDEN, New York.
To Camp Upton, N. Y., Lieut. B. F. SENFTENBERG, Cedarhurst. Base hospital, for instruction, Capt. J. W. HANNETT, Johnson City.
To Camp Wheeler, Ga., Lieut. C. MacCOY, Brooklyn.
To Fort Leavenworth, Texas, Capt. V. V. ANDERSON, Albany.
To Fort Oglethorpe for instruction, Capts. W. H. NEVILLE, Auburn; E. L. SWAN, Brooklyn; G. R. CUTTING, L. KAUFFMAN, Buffalo; F. L. FLYNN, J. A. ROBERTSON, J. C. STAMMERS, New York; R. M. MacRAE, Staten Island; Lieuts. A. F. DEGRAFFENRIED, Boyside; S. M. BRUSILOWSKY, L. L. COHEN, J. DOLIN, B. GOLDFARB, S. KNOPP, P. MININBERG, D. E. WELCH, Brooklyn; H. D. ANDREWS, H. C. GUESS, W. B. HARRISON, A. HORWITZ, R. A. PAXTON, J. SCHWEITZER, Buffalo; W. A. PALMER, Elmira; N. H. RYAN, Fort Slocum; H. M. PHIPPS, Hempstead; M. A. PLACE, Hornell; R. GORDNER, Middletown; S. W. BOORSTEIN, W. I. BUDINGTON, T. W. CAREY, B. EDELSACK, W. A. FLICK, H. GOLDMAN, R. B. HOOD, E. W. LAWRENCE, W. H. LIVINGSTON, C. F. LONGFELLOW, F. A. MANZELLA, R. L. McGREADY, M. P. PODGUR, H. P. POSNER, R. RAPP, L. ROSEN, W. ROSENSON, J. S. SMITH, W. R. SPARKS, M. E. TRASK, J. J. UNGER, New York; J. C. PLAIN, Ransomville; H. M. GROGAN, W. F. RAFFERTY, Rensselaer; G. M. HEBER, Richmond Hill; W. H. CADMUS, T. T. HUNTINGTON, A. J. PRICE, J. K. QUIGLEY, Rochester; B. W. ROY, Schenectady; D. U. GOULD, Sherburne; C. D. REID, Jr., Syracuse.
To Fort Ontario, N. Y., Capt. A. M. WOSE, Syracuse.
To Hoboken, N. J., Capt. L. REU, Buffalo; Lieuts. D. M. ALLISON, Camden; J. A. BURNS, Wilson.
To Long Island City, N. Y., Lieut. F. C. McDANIEL, New York.
To New Haven, Conn., Capt. E. P. KOLB, Holtsville.
To Newport News, Va., Lieut. E. R. SPRAGUE, Rochester.
To New York, Cornell Medical College, for instruction, Lieuts. A. J. P. PACINI. Neurological Institute, for intensive training, Lieuts. H. V. GIANCOTIERI, Brooklyn; H. J. SHEFFIELD, Frankfort; F. J. LABRUIER, New York.
To Niagara Falls, N. Y., Lieut. W. L. WILSON, Niagara Falls.
To Plattsburg, N. Y., Capts. C. L. CARLISLE, Albany; L. BLUMGART, New York; W. H. KIDDER, Oswego; Lieut. W. J. BERNIS, Rochester.
To report to the commanding general, Eastern Department, Capts. A. W. JACKSON, Albion; F. J. DUFFEY, Brooklyn; W. K. O'CALLAGHAN, Buffalo; T. MacRAE, New York; G. GARUCCI, Rochester;

Lieuts. J. H. SMITH, Brooklyn; M. M. PESHKIN, Fort Slocum; C. J. MILLIS, New York.

To Syracuse, N. Y., Capt. T. F. LAURIE, Syracuse.

To Walter Reed General Hospital, D. C., Capt. C. OGILVY, New Rochelle.

To Washington, D. C., St. Elizabeth's Hospital, for intensive training, Lieut. W. H. LANE, Buffalo.

North Carolina

To Baltimore, Md., Lieut. J. R. ASHE, Charlotte.

To Fort Oglethorpe for instruction, Lieuts. J. S. HARRISON, Elm City; W. F. ELLIOTT, Lincolnton; J. B. WATSON, Raleigh.

To New Haven, Conn., Capts. J. E. ASHCRAFT, Monroe; S. P. BASS, Tarboro; Lieut. B. O. EDWARDS, Landis.

North Dakota

To Fort Riley for instruction, Lieuts. R. W. STOUGH, Beach; J. W. TOWEY, Langdon; M. G. FLATH, Stanley.

Ohio

To Camp Custer, Mich., Lieut. R. C. TARBELL, Columbus.

To Camp Grant, Ill., Lieut. E. L. SILBERSTEIN, Cincinnati.

To Camp Greene, N. C., Lieut. F. E. HART, Canton.

To Camp Meade, Md., Lieut. C. C. ROLLER, Akron.

To Camp Pike, Ark., base hospital, for instruction, Lieut. I. C. KISER, Piqua.

To Camp Sherman, Ohio, base hospital, Capt. A. F. SHEPHERD, Dayton. Base hospital, for instruction, Capt. J. G. BLOWER, Lieut. A. W. McCANDLESS, Akron. *To examine the command* for nervous and mental diseases, Lieut. E. A. BABER, Dayton.

To Camp Upton, N. Y., base hospital, Lieut. A. B. McCONAGHA, Worthington.

To Camp Zachary Taylor, Ky., base hospital, Lieuts. L. I. NELSON, Cincinnati; W. J. MANNING, Lakewood.

To Colonia, N. J., Capt. C. M. SHEPARD, Columbus.

To Fairfield, Ohio, Wilbur Wright Field, Capt. A. C. MESSENGER, Xenia.

To Fort Benjamin Harrison, Lieuts. E. W. GRUBB, Akron; C. C. TAYLOR, East Rochester.

To Fort Oglethorpe for instruction, Capts. N. E. FRIEDMAN, K. S. WEST, Cleveland; H. A. SLUSSER, Dayton; G. D. LOWRY, Delaware; B. O. KREILICK, Fremont; F. H. LEVER, Loveland; F. J. GEORGE, Okeana; Lieuts. J. B. WILKINSON, Alliance; F. F. AYRES, Brunswick; P. DeCOURCY, O. L. GOLDBERG, Cincinnati; H. A. MAHRER, F. H. MOHRMAN, Cleveland; H. PRUSHING, Columbus; G. N. WENGER, Dalton; J. R. McDANIEL, East Fultonham; G. B. MAXWELL, Fredericksburg; J. G. McNAMARA, Green Camp; W. T. TRAVIS, Leetonia; E. E. CAMPBELL, Logan; F. E. ROSNAGLE, London; T. R. DICKSON, Norwood; J. V. TAYLOR, New Philadelphia; F. C. HARMAN, Ottoville; J. W. WENTZ, Pataskale; W. D. SCHAFER, Portsmouth; J. T. DUNCAN, W. L. RHONEHOUSE, E. F. VETTER, Toledo; L. W. NAUS, Upper Sandusky.

To Fort Riley, Lieuts. F. J. MELZER, Cleveland; J. A. PARK, Lima; W. D. PORTERFIELD, New Marshfield. For instruction, Capt. G. A. MACK, Gallipolis.

To New Haven, Conn., Lieut. W. C. BREIDENBACH, Dayton. Yale Army Laboratory School, for instruction, Capt. N. D. GOODHUE, Dayton; Lieut. R. L. BARNES, Columbus.

To report to the commanding general, Central Department, Capt. E. E. PETERS, Bradley; Lieut. B. S. CRANSTON, New London.

Oklahoma

To Camp Pike, Ark., base hospital, for instruction, Lieut. R. WALKER, Pawhuska.

To Fort Riley, Lieut. J. DONOHOO, Tulsa. For instruction, Capt. L. H. HUFFMAN, Hobart; Lieuts. J. L. HOLLAND, Madill; A. J. WILLIAMS, McLoud; J. H. BEATTY, J. C. DOVELL, Miami; E. W. MABRY, Tipton; E. A. SPITZ, Tulsa.

To Fort Sill, Okla., Capt. G. PINNELL, Miami.

To report to the commanding general, Southern Department, Lieut. S. P. STROTHER, Boldenville.

Oregon

To Camp Fremont, Calif., Capt. S. H. SHELDON, Portland.

To Camp Lewis, Wash., Lieuts. W. T. JOHNSON, Corvallis; T. M. GILMORE, Imbler; R. B. MILLER, Lebanon; C. L. WILLIAMS, McMinnville; E. BENNETT, Monroe; C. G. RATTNER, Portland. Base hospital, Lieut. J. H. KAVANAUGH, Pendleton; R. B. KARKEET, E. N. NEULEN, Portland. Base hospital, for instruction, Capts. W. F. AMOS, C. G. SABIN, F. J. ZIEGLER, Portland.

To Fort Oglethorpe for instruction, Lieuts. G. A. CATHEY, R. A. PAYNE, J. F. SMITH, Portland.

To Fort Riley for instruction, Lieuts. B. R. WALLACE, Albany; A. A. SOULE, Klamath Falls.

To report to the commanding general, Western Department, Capts. B. F. ROSEMAN, Elgin; C. SEAMANN, Portland; Lieuts. J. E. BRIDGWATER, Albany; J. O. C. WILEY, Portland.

To San Francisco, Calif., Letterman General Hospital, Capt. W. T. PHY, Hot Lake.

To Washington, D. C., Major J. A. PETTIT, Portland.

Pennsylvania

To Army Medical School, Lieut. C. G. RENN, Lairdsville.

To Baltimore, Md., Capt. J. P. LAIRD, Devon.

To Camp Lee, Va., base hospital, for instruction, Lieut. A. F. HARDT, Williamsport.

To Camp Meade, Md., for instruction, Lieuts. B. LIPSHUTZ, Philadelphia; L. F. WAY, Reading.

To Camp Sherman, Ohio, base hospital, Lieut. H. P. LYNCH, Monongahela.

To Camp Zachary Taylor, Ky., base hospital, Capt. J. J. SULLIVAN, Jr., Scranton.

To Fort Oglethorpe for instruction, Capts. E. V. KYLE, Christiana; W. N. KAYLOR, Leacock; O. G. LEWIS, Washington; J. HEMPHILL, West Chester; Lieuts. J. B. PRICE, Allentown; R. E. MILLER, Bloomsburg; M. U. McINTIRE, Boswell; C. E. HERMAN, Carnegie; H. M. ARMITAGE, Chester; G. T. LUKENS, Conshohocken; H. W. BELL, Crafton; H. E. McCORMICK, A. B. MUSA, E. W. RICHARDS, Easton; G. D. LUCE, Jenks; F. A. DONLAN, Lilly; J. M. GEMMILL, Millville; M. M. TEPLITZ, Mont Alto; H. BLUMSWEIG, W. G. BOEHRINGER, E. L. BRITTINGHAM, C. H. LYON, G. ROSENBAUM, H. W. SCARLETT, J. H. SCHAEFFER, Philadelphia; W. A. CAVEN, H. R. GOLDSTEIN, C. L. McCULLOUGH, G. H. McKINSTRY, E. W. STEVENSON, C. M. STRAESSLEY, O. H. SWARTZ, Pittsburgh; S. GROSE, Scranton; J. C. POFFENBERGER, Sunbury.

To Hoboken, N. J., Lieut. W. UDELL, Philadelphia.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. T. P. TREDWAY, Erie.

Philippine Islands

To Philippine Department, Lieuts. TIETZE, Baguio; J. W. LEWIS, Canlubang.

Porto Rico

To Camp Las Casas, P. R., Lieuts. M. J. BERRIOS, Yabucca; M. VELEZ, Yauco. Base hospital, Lieut. F. DE JUAN, Jr., San Juan.

Rhode Island

To Fort Oglethorpe for instruction, Lieuts. B. CHAPAS, Providence; T. J. McLAUGHLIN, Woonsocket.

South Carolina

To Camp Meade, Md., Lieut. S. FRIEDHEIM, Rock Hill.

To Fort Oglethorpe for instruction, Capt. S. A. WIDEMAN, Townville; Lieuts. C. D. BOETTE, Charleston; S. L. PARNELL, Lamar; R. H. FOLK, Lexington; B. C. TEAM, Ridgeway; F. A. LAWTON, Scotia; L. G. BROOKER, Swansea.

South Dakota

To Fort Riley for instruction, Lieuts. W. E. DICKINSON, Canistota; J. R. WESTABY, Clark; C. H. SWETT, Winner.

Tennessee

To Fort Oglethorpe for instruction, Lieuts. H. RENNER, G. F. RYAN, Chattanooga; R. W. KISSANE, Dyersburg; F. C. JAMES, Gadsden; J. L. DUNAVANT, Glimp; T. Z. ELINOR, Greenfield; T. A. CALDWELL, Jefferson City; J. D. CAPPA, Livingston; A. L. BLECKER, Memphis; T. H. YOUNG, Nashville; L. S. LOVE, Silver Point.

To New Haven, Conn., for instruction, Lieut. H. SPITZ, Nashville.

Texas

To Camp Cody, N. M., Lieut. O. H. JUDKINS, Corpus Christi.

To Camp Jackson, S. C., Lieut. A. R. SUPER, Dallas. Base hospital, for instruction, Capt. G. W. ALLEN, Jr., Yorktown.

To Camp Logan, Texas, Lieut. O. J. COLWICK, Clifton. Base hospital, Lieut. H. S. GARLICK, Laredo. Base hospital, for instruction, Lieut. S. M. HILL, Dallas.

To Camp MacArthur, Texas, base hospital, Capt. S. S. BECKLEY, San Antonio.

To Camp Travis, Texas, Capt. S. T. HARRIS, El Paso; Lieut. T. E. DUNNAM, Spring. Base hospital, for instruction, Lieut. R. L. LEWIS, Paris.

To Fort Oglethorpe for instruction, Capts. W. E. CROW, Dallas; E. B. AULER, Elgin; W. S. HAMILTON, San Antonio; Lieuts. J. H. MASSIE, Floydada; J. B. JENKINS, Mooreville; G. C. SANDERS, Richards; H. C. WEAVER, Rule; R. H. CROCKETT, Thorndale.

To Fort Riley, Capt. W. C. KIMBROUGH, Denton; Lieut. W. M. WARREN, Center. For instruction, Lieuts. C. H. DAVIS, Arlington; G. A. LILLIE, Batson; W. P. FARRINGTON, Munday; H. H. TAYLOR, San Saba.

To Hampton, Va., Langley Field, Lieut. H. P. DEADY, El Paso.

To Houston, Texas, Capt. S. M. LISTER, Houston.

To report to the commanding general, Southern Department, Capt. B. L. JENKINS, Clarendon; Lieuts. E. H. SAUVIGNET, Laredo; W. H. DUNN, Rochester.

Utah

To Army Medical School, Lieut. T. J. HOWELLS, Salt Lake City.

To Camp Cody, N. M., base hospital, for instruction, Capt. W. A. COLTON, Salt Lake City.

To Camp Lewis, Wash., Lieut. M. J. SEIDNER, Ogden.

To Fort Oglethorpe for instruction, Lieut. W. SHEPHERD, Beaver.

To Fort Riley for instruction, Lieut. W. L. SUTHERLAND, Storrs.

Vermont

To Camp Devens, Mass., base hospital, Capt. W. R. NOYES, Brattleboro.

To Camp Meade, Md., Capt. W. T. SLAYTON, Morrisville.

To report to the commanding general, Northeastern Department, Lieut. J. L. WELSH, Proctor.

Virginia

To Army Medical School, Capt. I. L. CHAPMAN, Norfolk.

To Camp Meade, Md., Capt. E. T. HARGRAVE, Norfolk.

To Camp Sevier, S. C., Capt. M. L. REA, Charlottesville.

To Fort Oglethorpe for instruction, Capt. J. M. ROBINSON, Danville; Lieuts. G. E. FAULKNER, J. C. SLEET, Norfolk; J. L. KENT, Pulaski; B. C. MOOMAW, Roanoke; C. JONES, Staunton; G. T. DIVERS, Stuart.

To Richmond, Va., for instruction, Lieut. J. W. ABBITT, Port Norfolk.

To Walter Reed General Hospital, D. C., Capt. G. B. LAWSON, Roanoke.

Washington

To Camp Jackson, S. C., base hospital, Major E. E. HEG, Kent.

To Camp Lewis, Wash., Capt. E. M. ASHLEY, Spokane; Lieuts. W. M. MUNSELL, Grandview; F. P. C. DAVIS, Kelso; E. A. RICKARDS, C. H. TURPIN, Seattle; C. F. RIGG, Spokane; A. W. SCHULZ, Tacoma; C. R. DUNCAN, Wapato. Base hospital, Capts. H. V. WURDEMANN, Lake Forest Park; E. R. Northrop, Lieut. O. M. ROTT, Spokane. Base hospital, for instruction, Lieuts. T. TORLAND, Seattle; A. R. LUNDGREN, Spokane. For instruction, Lieut. A. R. McKEOWN, Leavenworth.

To Denver, Colo., Lieut. F. A. SLYFIELD, Seattle.

To Fort Oglethorpe for instruction; Capt. A. A. MATTHEWS, Spokane; Lieuts. R. J. JAMES, Seattle; R. S. VAN PELT, Tacoma.

To Fort Riley for instruction, Capt. J. GREEN, Tarowan; Lieuts. H. F. THIEL, Creston; A. G. TULLAR, Kennewick.

To report to the commanding general, Western Department, Lieut. J. A. LaGASA, Tacoma.

West Virginia

To Camp Hancock, Capt. C. A. WINGERTER, Wheeling.
To Camp Lee, Va., base hospital, Capt. H. E. OESTERLING, Wheeling.
To Fort Benjamin Harrison, Capt. J. M. HOUSTON, Elm Grove.
To Fort Oglethorpe for instruction, Capt. R. W. DUNHAM, Bernis; Lieuts. W. G. C. HILL, Cameron; A. D. S. LILLY, Crystal; E. D. MOYERS, Harrisville; R. G. STOTTS, Kenova; J. H. LUIKART, Moundsville; I. V. GRISSOM, Princeton; F. V. LANGFITT, Salem; H. E. DAVIS, Switzer; H. L. STRANDBERG, Terra Alta; G. C. BLAKE, Tunnelton.
To New Haven, Conn., Lieut. H. C. SLAUGHTER, Charleston.

Wisconsin

To Camp Grant, Ill., base hospital, for instruction, Lieut. B. C. TARNUTZER, Beaver Dam.
To Camp Pike, Ark., Lieut. H. C. STOLTZ, Milwaukee.
To Camp Sherman, Ohio, base hospital, Capt. A. G. HOUGH, Madison.
To Fort Oglethorpe for instruction, Lieut. A. J. WILLIAMS, Waukesha.
To Fort Riley for instruction, Capt. M. E. RIDEOUT, Hortonville; Lieuts. A. C. EDWARDS, Arcadia; M. P. ANDREWS, Beloit; F. BABCOCK, Cumberland; J. L. BENDER, Ithaca; O. H. ANDERSON, Plum City; C. M. ANDERSON, Wild Rose.
To report to the commanding general, Central Department, Lieut. J. W. TARTER, Iron River.

Wyoming

To Camp Dodge, Iowa, base hospital, Capt. J. H. HOLLAND, Evanston.
To Fort Riley for instruction, Lieut. H. P. HANSEN, Burns.
To report to the commanding general, Western Department, Capt. H. E. McCOLLUM, Laramie; Lieut. J. R. MARQUIS, Kemmerer.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Crane, Pa., surgical group, from Fort Oglethorpe, Capt. R. C. JONES, Mobile.
To Camp Greene, N. C., from Fort Oglethorpe, Lieut. G. R. COLLIER, Tuskegee.
To Fort Oglethorpe, base hospital, from Camp Wheeler, Capt. A. C. CAMERON, Birmingham. Evacuation hospital, from Camp Bowie, Lieut. C. H. MOORE, Birmingham.
To Otisville, N. Y., from Fort Slocum, Lieut. A. D. McFADDEN, Ariton.
To San Antonio, Texas, Kelly Field, from Montgomery, Lieut. G. A. CRYER, Anniston.

Arizona

To Fort Niagara, N. Y., from Camp Grant, Capt. E. DARRAGH, Bisbee.

Arkansas

To Camp Crane, Pa., evacuation hospital, from Camp Devens, Lieut. S. C. ANDREWS, Waldo.
To Camp MacArthur, Texas, from Fort Des Moines, Major W. A. SNODGRASS, Little Rock.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. C. LAND, Walnut Ridge.
To Columbus, Ohio, from Fort Riley, Lieut. O. C. STRUTHERS, Siloam Springs.
To Fort Oglethorpe for instruction, Lieut. L. H. STOUT, Forrest City.
To San Antonio, Texas, Kelly Field, from West Point, Lieut. J. S. DAVIDSON, Marvell. As tuberculosis examiner from Camp Dodge, Major P. C. WILLIAMS, Texarkana; from Camp Travis, Lieut. H. M. STRACHAN, Hot Springs.

California

To Camp Beauregard, La., from Fort Sill, Lieuts. W. C. DUNCAN, Los Angeles; W. K. BIXBY, Sebastopol.
To Camp Cody, N. M., base hospital, for instruction, from Camp Kearney, Lieut. E. H. CRABTREE, San Diego.
To Camp Crane, Pa., base hospital, from San Francisco, Major A. C. CARLTON, San Mateo.
To Camp Greene, N. C., from Lincoln, Neb., Capt. G. B. HAMILTON, Oakland.
To Camp Kearney, Calif., Capt. C. C. FALK, Eureka; from Camp McClellan, Major J. D. CONDIT, Pasadena.
To Camp McClellan, Ala., base hospital, from Camp Crane, Capt. W. P. MILLIKEN, Oakland.
To Fort Oglethorpe, from Camp Kearney, Lieuts. C. A. ROBINSON, Ione; W. F. PRIESTLEY, Stockton.
To Fort Stevens, Ore., as tuberculosis examiner from Camp Fremont, Major J. A. PARKS, San Diego.
To Fort Winfield Scott, Calif., as tuberculosis examiner, from Camp Fremont, Major W. R. P. CLARK, San Francisco; Capt. J. E. FAHY, Los Angeles.
To Fort Worden, Wash., as tuberculoseis examiner, from Camp Fremont, Capt. H. A. HOIT, Pasadena.
To San Francisco, Calif., Leland Stanford University, to give orthopedic instruction, Capt. L. W. ELY, San Francisco.
To Washington, D. C., for conference, and on completion *to San Antonio, Texas,* Kelly Field, as flight surgeon, from Mineola, Lieut. C. E. HOLGATE, Los Angeles.

Canal Zone

To Walter Reed General Hospital, D. C., from New Haven, Capt. L. B. BATES, Ancon.

Colorado

To Camp Beauregard, La., from Fort Sill, Lieut. C. C. BELL, Denver.
To Denver, Colo., Capt. G. W. HOLDEN, Denver.
To Fort H. G. Wright, N. Y., from Camp Grant, Capt. F. H. HARRISON, Fraser.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station,* from Camp Dix, Capt. E. G. GRIFFIN, Denver.

Connecticut

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. J. H. ROOT, Waterbury.
To Camp Gordon, Ga., base hospital, for instruction, from Camp Greene, Lieut. R. W. LOWE, Ridgefield.
To Camp MacArthur, Texas, to examine drafted men for cardiovascular diseases, from Camp Sheridan, Capt. R. S. STARR, Hartford.
To Fort Oglethorpe for instruction, from New York, Lieut. C. D. DEMING, Hartford.
To Hoboken, N. J., evacuation hospital, from Fort Oglethorpe, Capt. C. K. PETERSON, Lakeville.
To San Antonio, Texas, Kelly Field, to examine drafted men for cardiovascular diseases, from Jefferson Barracks, Lieut. F. M. SMITH, Willimantic.

Delaware

To Camp Lee, Va., from Fort Oglethorpe, Lieut. V. D. WASHBURN, Wilmington.

District of Columbia

To Camp Beauregard, La., Col. G. H. SCOTT.
To Camp Dodge, Iowa, Lieut.-Col. J. F. EDWARDS.
To Camp Fremont, Calif., as camp surgeon, from Washington, Lieut.-Col. H. H. SHARPE.

Florida

To Camp Devens, Mass., base hospital, from New York, Capt. L. A. PEEK, West Palm Beach.
To Camp Jackson, S. C., base hospital, for instruction, from Camp MacArthur, Capt. J. Y. PORTER, Jr., Key West Barracks.
To Mount Pleasant, Mich., Central Michigan Normal School, and on completion *to Columbus, Ohio,* from Ann Arbor, Capt. B. E. VAUGHAN, Palmette.
To San Antonio, Texas, Kelly Field, from Arcadia, Lieut. R. F. GILBERT, Jacksonville.
To Washington, D. C., Surgeon-General's Office, from Camp A. A. Humphreys, Capt. R. C. HUBBARD, Bushnell.

Georgia

To Camp McClellan, Ala., base hospital, from Camp Crane, Capt. C. K. SHARPE, Arlington.
To Fort Oglethorpe, base hospital, from Camp Pike, Lieut. J. M. HARTLEY, Zebulon. Evacuation hospital, from Camp Jackson, Lieut. E. B. ANDERSON, Atlanta.
To New York, Bellevue Hospital, for instruction, and on completion *to his proper station,* from Camp Sherman, Lieut. S. T. R. REVELL, Louisville.
To San Antonio, Texas, Kelly Field, from Fort Wayne, Capt. J. M. SPENCE, Camilla.
The following order has been revoked: To Fort Oglethorpe, evacuation hospital, from Camp Gordon, Lieut. J. H. CAMPBELL, Jefferson.

Hawaii

To Camp Cody, N. M., from Hawaiian Department, Major A. V. HENNESSY, Honolulu.

Illinois

To Boston, Mass., Parker Hill, from Camp Grant, Capt. L. B. PHELPS, Chicago; from Camp Greene, Capt. W. A. CLARK, Chicago.
To Camp Crane, Pa., as tuberculosis examiner, from Syracuse, Lieut. J. SCHLESINGER, Oak Forest. Evacuation hospital, from Camp Lee, Capt. S. R. CATLIN, Rockford; from Camp Pike, Capt. C. W. COMPTON, Springfield. Surgical group, from Camp Sherman, Capt. E. WINDMUELLER, Woodstock.
To Camp Custer, Mich., base hospital, for instruction, Capt. A. N. CLAGETT, Oak Park.
To Camp Devens, Mass., base hospital, for instruction, from Fort Warren, Lieut. J. L. WEBB, Chicago.
To Camp Lee, Va., from Syracuse, Capt. E. A. OLIVER, Chicago.
To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Grant, L. NEWMAN, Chicago.
To Camp Pike, Ark., from Camp Grant, Lieut. H. CULVER, Chicago.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. G. H. MOORE, Aledo.
To Camp Shelby, Miss., as tuberculosis examiner, from Camp Zachary Taylor, Capt. W. H. CREDE, Lamoille.
To Camp Upton, N. Y., base hospital, from New York, Lieut. C. W. SEEVER, Sheldon.
To Camp Wadsworth, S. C., from Camp Kearney, Capt. S. M. MILLER, Peoria; from Camp Shelby, Lieut. A. PEARMAN, Rockford.
To Chicago, Ill., from Jefferson Barracks, Lieut. R. D. LUSTER, Granite Hill.
To Fort Dupont, Del., from Army Medical School, Lieut. H. L. LeSAULNIER, Red Bud.
To Fort Oglethorpe, from Camp Hancock, Lieut. H. P. REUSS, Granite City. Evacuation hospital, from Camp Beauregard, Lieut. J. C. GARARD, Chicago. For instruction, Lieut. J. P. SIMPSON, Palmer.
To Lawrenceville, N. J., from Camp Beauregard, Capt. J. E. WALTON, Medora.
To Markleton, Pa., from New Haven, Capt. G. ELLISON, Chicago.
To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Joseph E. Johnston, Capt. F. I. BROWN, Chicago; from Camp Sevier, Lieut. J. N. BUCHANAN, Freeport.
To New York, Bellevue Hospital, for instruction, and on completion *to Camp Meade, Md.,* base hospital, for instruction, from Rockefeller Institute, Lieut. P. E. GREENLEAF, Bloomington. On completion *to his proper station,* from Camp Sherman, Lieut. J. W. KELLY, Chicago.
To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Dodge, Lieuts. R. W. DUNHAM, Chicago; T. C. WEBER, West Salem.
To Walter Reed General Hospital, D. C., and on completion *to Boston, Mass.,* from Hoboken, Major P. B. MAGNUSON, Chicago.
To Washington, D. C., for conference, and on completion *to Mineola, N. Y.,* Hazelhurst Field, for instruction, from San Antonio, Capt. H. E. MIZE, Chicago.
To West Baden, Ind., from Azalea, N. C., Lieut. J. W. MORAN, Oak Forest.

Indiana

To Boston, Mass., from Walter Reed General Hospital, Capt. L. A. BOLLING, Attica.

To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Devens, Lieut. J. J. GROSVENOR, Richmond.

To Camp Alfred Vail, N. J., from Camp Grant, Capt. R. E. JONES, Clayton.

To Camp Dix, N. J., base hospital, from New York, Capt. B. W. CHIDLAW, Hammond.

To Camp Grant, Ill., from Camp McClellan, Lieut. S. F. TEAFORD, Paoli.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. N. L. MEDCALF, Lamar.

To Camp McClellan, Ala., as assistant sanitary inspector, from Fort Oglethorpe, Capt. F. HODGES, Indianapolis. Base hospital, from Fort Benjamin Harrison, Capts. S. R. CLARK, Petersburg; J. L. McBRIDE, Zanesville; Lieut. O. M. JOHNSON, Kokomo.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. F. J. McMICHAEL, Gary.

To Houston, Texas, Ellington Field, from Mineola, Lieut. B. J. PETERS, Kokomo.

To Madison Barracks, N. Y., from Camp Grant, Capt. S. A. CLARK, South Bend.

To Saltville, Ga., from Fort Oglethorpe, Lieut. R. E. SWOPE, Rockville.

Iowa

To Camp Cody, N. M., from Hawaiian Department, Major A. V. HENNESSY, Council Bluffs.

To Camp Wheeler, Ga., as orthopedic surgeon, and on completion *to Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. W. J. FENTON, Mystic.

To Fort Dupont, Del., from Fort Riley, Lieut. F. E. SIMERAL, Brooklyn.

To Fort H. C. Wright, N. Y., from Camp Grant, Capt. N. W. JOHNSON, Cedar Rapids.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Rockefeller Institute, Capt. T. S. GITTENS, Iowa City.

To Newport News, Va., from Camp Morrison, Lieut. F. L. SECOY, Sioux City.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Zachary Taylor, Ky.*, base hospital, for instruction, from Fort Riley, Capt. W. RUML, Cedar Rapids.

To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Custer, Capt. L. L. CRAVEN, East Peru.

To Sewanee, Tenn., University of the South, from Fort Oglethorpe, Capt. C. F. SMITH, Des Moines.

To Washington, D. C., from Camp Dodge, Lieut.-Col. E. W. RICH.

Kansas

To Camp Crane, Pa., evacuation hospital, from Fort Riley, Lieut. W. L. BUTLER, Stafford.

To Fort Hunt, Va., from Camp Grant, Capt. J. C. CALDWELL, Wellington.

To Fort Oglethorpe, Ga., evacuation hospital, from Camp McClellan, Lieut. E. J. BRIBACH, Atchison.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. W. H. ROBINSON, Eudora.

To Walter Reed General Hospital, D. C., from New Haven, Capt. H. R. MAJOR, Rosedale.

Kentucky

To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Devens, Lieut. W. T. LITTLE, Calvert City.

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. T. E. CRAIG, Colesburg.

To Camp Alfred Vail, N. J., from Fort Oglethorpe, Lieut. J. C. CLEM, Louisville.

To Camp Bragg, N. C., as camp sanitary inspector, from Fort Oglethorpe, Capt. J. D. MAGUIRE, Lexington.

To Camp Devens, Mass., from Camp Upton, Capt. R. W. OGILVIE, Princeton.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. R. L. WOODWARD, Hopkinsville.

To Camp Wadsworth, S. C., from Camp Gordon, Lieut. G. BELOTE, Mayfield.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Omaha, Lieut. S. T. SMOCK, Glasgow.

To Newport News, Va., from Camp Pike, Major G. H. DAY, Louisville.

Louisiana

To Camp McClellan, Ala., as orthopedic surgeon, from Newport News, Lieut. R. C. VOSS, New Orleans.

To Camp Shelby, Miss., base hospital, Capt. E. KIBLINGER, Marksville. Base hospital, for instruction, from Fort Oglethorpe, Lieut. M. J. GELPI, New Orleans.

To Camp Upton, N. Y., base hospital, from New York, Capt. L. O. CLARK, Lafayette.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Rockefeller Institute, Lieut. J. R. STAMPER, Caspiana.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station*, from Camp MacArthur, Lieut. W. N. HANKINS, Derry.

To Washington, D. C., from Camp Beauregard, Lieut.-Col. H. P. CARTER.

Maine

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. S. N. VOSE, Madison.

To Camp Wadsworth, S. C., from Camp Gordon, Major W. L. COUSINS, Portland.

To Fort Oglethorpe, base hospital, from Camp Crane, Major T. O. VANAMEE, Portland.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. R. D. WALTON, Frankfort.

To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Capt. H. K. RICHARDSON, Bradford.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. H. W. STANWOOD, Rumford.

Maryland

To Camp Crane, Pa., base hospital, from Fort Des Moines, Lieut. E. NOVAK, Baltimore.

To Camp McClellan, Ala., base hospital, from Camp Crane, Capt. T. J. COONAN, Westminster.

To Camp Meade, Md., base hospital, from Fargo, Lieut. C. L. CALLANDER, Baltimore.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. A. SKLADOWSKY, Baltimore.

To Cape May, N. J., from Colonia, Major R. FAYERWEATHER, Baltimore.

To Fort Oglethorpe, as instructor, from New York, Lieut. S. COBB, Baltimore. For instruction, from Camp Sherman, Lieut. F. G. COWHERD, Cumberland.

To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Custer, Lieut. L. L. JACOBS, Baltimore.

The folowing order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. H. H. STANSBURY, Baltimore.

Massachusetts

To Boston, Mass., from duty as a contract surgeon, Lieut. G. H. POIRIER, Boston.

To Camp Crane, Pa., base hospital, from Camp Devens, Major E. A. DARLING, Cambridge. Evacuation hospital, from Camp Upton, Lieut. C. W. STANSFIELD, Fall River.

To Camp Custer, Mich., to examine the troops for cardiovascular diseases, from Lakewood, Capt. G. M. ALBEE, Worcester.

To Camp Gordon, Ga., base hospital, from New Haven, Capt. H. W. NOWELL, Boston.

To Camp Grant, Ill., from Camp Sherman, Lieut. M. M. HAMBURG, Waltham.

To Camp Jackson, S. C., as orthopedic surgeon, from Walter Reed General Hospital, Lieut. E. P. RUGGLES, Boston.

To Camp MacArthur, Texas, base hospital, from Brockton, Capt. J. F. CALLAHAN, Brockton.

To Camp McClellan, Ala., as division psychiatrist, from Camp Gordon, Major G. E. McPHERSON, Harding. As orthopedic surgeon, from Syracuse, Lieut. K. JOHNSON, Pittsfield.

To Camp Wadsworth, S. C., from Camp Gordon, Capt. F. J. McKECHNIE, Springfield.

To Fort McPherson, Ga., from Fort Oglethorpe, Capt. H. J. FITZSIMMONS, Boston.

To Fort Oglethorpe, evacuation hospital, from Camp Shelby, Lieut. H. S. POMEROY, Peabody. For instruction, Lieut. H. F. DEARBORN, Lawrence.

To Hoboken, N. J., from New York, Capt. C. WHELAN, Hingham. Evacuation hospital, from Camp Devens, Lieut. W. K. TURNER, New Bedford.

To Otisville, N. Y., from Syracuse, Lieut. E. H. GANLEY, Methuen.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Devens, Lieut. S. E. RYAN, Springfield.

To San Antonio, Texas, to examine drafted men for cardiovascular diseases, from Lakewood, Lieut. D. H. NISBET, Boston.

To Walter Reed General Hospital, D. C., from Baltimore, Capt. R. D. BELL, Somerville; from Camp Lee, Lieut. F. A. STEVENS, Boston.

The following orders have been revoked: *To Fort Oglethorpe* for instruction, Major F. H. VERHOEFF, Boston. *To Mays Landing, N. J.*, from Northeastern Department, Lieut. V. S. MERRITT, Springfield.

Michigan

To Camp A. A. Humphreys, Va., from Camp Crane, continued on active duty for restricted service, Lieut. C. F. DU BOIS, Detroit.

To Camp Abraham Eustis, Va., camp hospital, from Fort Oglethorpe, Capt. F. A. BOET, Comstock Park.

To Camp McClellan, Ala., base hospital, from Iowa City, Capt. W. S. BROWNELL, Detroit.

To Camp Sevier, S. C., from Camp Jackson, Lieut. R. N. RUEDEMANN, Ann Arbor. Base hospital, from Fort Oglethorpe, Capt. C. E. SIMPSON, Detroit.

To Camp Travis, Texas, from Fort Oglethorpe, Lieut. F. DWYER, Detroit.

To Detroit, Mich., from Camp Custer, Capt. R. T. URQUHART, Grand Rapids.

To Fort Oglethorpe for instruction, Major H. A. HUME, Owosso.

To San Antonio, Texas, Kelly Field, from Fort Wayne, Lieuts. W. F. COURIE, Detroit; E. D. HUNDERMAN, Grand Rapids.

Minnesota

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. C. F. McNEVIN, St. Paul.

To Camp Meade, Md., base hospital, for instruction, from Camp Travis, Capt. J. A. GATES, Kenyon.

To Fort Totten, N. Y., from Camp Grant, Capt. J. P. FREEMAN, Glenville.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. F. L. POWERS, Pipestone. As tuberculosis examiner, from Camp Travis, Lieut. M. LEVY, Granite Falls.

To West Baden, Ind., from Camp Dodge, Capt. W. W. LEWIS, St. Paul.

Mississippi

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. J. C. WHITE, Jr., Hazelhurst.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. W. M. BERRY, Jackson.

To San Antonio, Texas, Kelly Field, from Fort Wayne, Lieut. M. L. HOLLAND, Schlater.

To Walter Reed General Hospital, D. C., for instruction, from Camp Sevier, Lieut. K. T. KLEIN, Meridian.

Missouri

To Baltimore, Md., from Fort Riley, Lieut. G. W. HORROM, Rolla.

To Camp Beauregard, La., from Fort Sam Houston, Lieut. N. ZOGLIN, Kansas City.

To Camp Crane, Pa., evacuation hospital, from Camp Pike, Capt. J. H. GROSS, St. Louis; Lieut. A. J. CAMPBELL, Sedalia.

To Camp Gordon, Ga., as camp psychiatrist, from Camp McClelland, Lieut. C. H. BURDICK, St. Louis.

To Camp Hancock, Ga., base hospital, from Camp Sheridan, Lieut. A. R. COHN, Kansas City.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. R. S. TILLES, Lieut. R. F. HYLAND, St. Louis.

To Camp McClellan, Ala., base hospital, from Fort Benjamin Harrison, Lieut. A. J. DECKER, Gray Ridge.

To Camp Shelby, Miss., base hospital, from Camp Jackson, Capt. F. L. BIGSBY, Kirksville.

To Camp Sherman, Ohio, base hospital, from New York, Capt. F. J. MOENNIGHOFF, Odessa.

To Camp Wadsworth, S. C., from Camp Kearney, Capt. L. A. KEMPFF, St. Louis.

To Fort Oglesthorpe, from Camp MacArthur, Lieut. L. E. DEAN, Maryville; from Camp Pike, Capt. A. S. HEITHAUS, St. Louis.

To Fort Riley for instruction, from Manhattan, Kan., Capt. F. M. O'KELLY, Carterville.

To Fort Snelling, Minn., from Azalea, N. C., Capt. P. G. PAUGH, St. Louis.

To Fort Warren, Mass., from Camp Devens, Lieut. C. S. STRATTON, Roscoe.

To Garden City, N. Y., as tuberculosis examiner, from Syracuse, Lieut. J. L. MARDER, St. Louis.

To Lakewood, N. J., from Walter Reed General Hospital, Lieut. C. M. SAMPSON, St. Joseph.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Jackson, Lieut. S. W. FAIR, Belton.

To San Antonio, Texas, Kelly Field, from Fort Wayne, Capt. D. H. BOKHOF, West Line; from Wichita Falls, Lieut. C. C. COATS, Winston.

To West Baden, Ind., from Azalea, N. C., Lieut. A. W. KOESSEL, St. Louis.

Montana

To Camp Beauregard, La., from Fort Sill, Lieut. W. A. HULBUSH, Geraldine.

To Camp Crane, Pa., base hospital, from Camp Grant, Capt. E. W. THUERER, Billings.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. A. B. ECKERDT, Great Falls.

To Rolling Prairie, Ind., Interlake School, to make physical examinations, and on completion *to Camp Custer, Mich.*, from Camp Dodge, Lieut. M. T. VORNHOLT, Antelope.

Nebraska

To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Sherman, Capt. L. S. ROBINSON, Kearney.

To Camp McClellan, Ala., from Fort Riley, Lieut. H. H. THOMPSON, Talmage.

To Fort Benjamin Harrison, from Central Department, Lieut. L. C. HILSABEAK, Gretna.

To San Antonio, Texas, Kelly Field, from Austin, Texas, Lieut. C. L. HOUSEL, Ansley.

New Hampshire

To Camp Crane, Pa., evacuation hospital, from Camp Meade, Lieut. C. E. HIGHT, Groveton. Mobile hospital, from Camp Zachary Taylor, Capt. F. A. SPRAGUE, Concord.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Devens, Lieut. E. L. CHAPMAN, Dover.

To West Baden, Ind., from Camp Wheeler, Major A. F. WHEAT, Manchester.

New Jersey

To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Devens, Lieut. S. R. FAIRCHILD, Penns Grove.

To Camp Crane, Pa., base hospital, from Hot Springs, Major E. B. ROGERS, Collingswood. Mobile hospital, from Fort Andrews, Capt. R. D. SCHIMMELPFENNIG, Montclair. Mobile Surgical Unit, from Fort Oglethorpe, Lieut. H. H. BOWLES, Summit.

To Camp Custer, Mich., from Fort Oglethorpe, Lieut. J. H. LOWREY, Newark.

To Camp Dodge, Iowa, base hospital, from Fort Oglethorpe, Lieut. B. M. HANCE, Boonton.

To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Grant, Lieut. L. V. ROSENTHAL, Trenton.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. C. B. RUSSELL, Paterson.

To Camp Shelby, Miss., as tuberculosis examiner, from Camp Gordon, Lieut. S. BLAUGRUND, Trenton.

To Camp Travis, Texas, to examine the troops for cardiovascular diseases, from Lakewood, Capt. T. ALSOP, Atlantic City.

To Camp Wheeler, Ga., from New York, Capt. F. A. FINN, Jersey City.

To Camp Zachary Taylor, Ky., base hospital, from New York, Capt. N. W. CURRIE, Plainfield.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Devens, Capt. W. J. DUCKETT, Jersey City.

To San Antonio, Texas, Kelly Field, from West Point, Miss., Capt. R. J. BEEBY, West Branch. As tuberculosis examiner, from Camp Custer, Lieut. W. H. HAINES, Audubon.

New Mexico

To Camp Crane, Pa., base hospital, from Camp Fremont, Lieut. H. D. SEWELL, Parkview.

To San Antonio, Texas, Kelly Field, from Middletown, Lieut. H. K. RIDDLE, Reserve.

New York

To Camp A. A. Humphreys, Va., from Fort Sill, Lieut. H. SHARP, New York.

To Camp Alfred Vail, N. J., from Camp Devens, Lieut. T. F. JUDGE, Troy.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Capt. W. G. BOWERMAN, New York.

To Camp Crane, Pa., base hospital, from Camp Meade, Capt. J. J. COTTER, New York. Evacuation hospital, from Newport News, Lieut. R. COLP, New York. Surgical group, from Camp Meade, Lieut. J. F. BEIERMEISTER, Rochester.

To Camp Dick, Texas, from Houston, Capt. J. D. GULICK, Schenectady.

To Camp Dix, N. J., base hospital, from Lakewood, Lieut. A. M. MORGENLANDER, New York.

To Camp Gordon, Ga., base hospital, from Camp Wheeler, Capt. C. H. SANFORD, New York.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. C. E. CURTISS, Manlius; from Fort Porter, Capt. C. H. MACKEY, Lancaster. *To examine the troops* for cardiovascular diseases, from Fort Oglethorpe, Lieut. W. B. HUNTLEY, New York.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Major F. T. ROBESON, New York; Lieut. M. R. BOOKMAN, New York.

To Camp MacArthur, Texas, as tuberculosis examiner, from Camp Sherman, Lieut. E. F. SAMPSON, New York. *To examine drafted men* for cardiovascular diseases, from Lakewood, Lieuts. L. A. BINGAMAN, R. WEST, New York.

To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Capt. H. E. MEEKER, New York; from Plattsburg Barracks, Capt. V. B. HAMLIN, Clinton; Lieut. M. E. FISHER, Delevan.

To Camp Pike, Ark., as orthorpedic surgeon, from Fort Oglethorpe, Lieut. L. P. HOOLE, Eastport.

To Camp Sevier, S. C., from Camp Jackson, Lieut. W. W. TRACEY, New York. Base hospital, from Fort Oglethorpe, Capt. C. A. LUBRECHT, Brooklyn; Lieut. S. L. SCIBETTA, Buffalo.

To Camp Shelby, Miss., as assistant sanitary inspector, from Fort Oglethorpe, Lieut. L. M. ROHR, Brooklyn. As tuberculosis examiner, from Camp Gordon, Lieut. L. B. BOYLAN, Woodhaven.

To Camp Upton, N. Y., base hospital, Lieut. W. F. C. STEINBUGLAR, Brooklyn.

To Camp Wadsworth, S. C., to examine the troops for cardiovascular diseases, from Lakewood, Lieut. A. T. MAYS, Brooklyn.

To Camp Zachary Taylor, Ky., base hospital, from New York, Lieut. A. S. UNGER, New York.

To Fort Hancock, N. J., from Army Medical School, Lieut. F. F. McGAULEY, Schenectady.

To Fort Oglethorpe, as instructor, from the Surgeon-General's Office, Major A. H. BUSBY, New York. For instruction, from duty as a private, Lieut. W. E. CAMPBELL, Jr., New York.

To Fort Sill, Okla., Post Field, as flight surgeon, from Lonoke, Capt. D. H. WEBSTER, New Rochelle.

To Garden City, N. Y., as tuberculosis examiner, from Syracuse, Lieuts. J. J. RANDALL, Albany; F. C. BALDERREY, Ithaca.

To Hoboken, N. J., from Camp Upton, Major H. FOX, New York.

To Lakewood, N. J., for instruction, Lieut. S. E. MANDEVILLE, New York.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Rockefeller Institute, Capt. A. L. MEYER, New York.

To New Haven, Conn., Yale Army Laboratory School, from Rockefeller Institute, Major C. G. BULL, New York.

To Newport News, Va., from Fort Oglethorpe, Capt. J. G. HOWARD, South Ozone Park.

To New York, Bellevue Hospital, for instruction, and on completion *to his proper station*, from Camp Dix, Lieut. J. M. SCHAFFER, New York; from Camp Upton, and on completion *to his proper station*, Lieut. S. HIRSCH, New York.

To Otisville, N. Y., from New Haven, Capt. H. JUDKOWITZ, Brooklyn; from Syracuse, Capt. C. B. BAKER, Kingston.

To Panama Canal Zone, from New Haven, Capt. E. C. GOW, Schuylerville.

To Rochester, N. Y., to examine enlisted men, Lieut. W. B. JONES, Rochester.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to their proper stations*, from Camp Devens, Capt. C. R. MARSH, Oneonta; Lieut. W. G. HALLSTEAD, Flushing; from Camp Upton, Capt. S. T. BARTON, Canastota.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. M. GROLLMAN, Brooklyn; from Middletown, Capt. W. L. LAING, Brooklyn.

To Walter Reed General Hospital, D. C., from Baltimore, Major R. A. KINSELLA, New York.

To Washington, D. C., from Rockefeller Institute, Lieut. F. L. GATES, New York. For conference and on completion *to Hicks, Texas*, Taliaferro Field, as flight surgeon, from Mineola, Capt. G. M. CLOWE, Schenectady. Surgeon-General's Office Major J. H. TELFAIR, New York.

The following order has been revoked: *To Camp Wadsworth, S. C.*, from Washington, Major H. R. GAYLORD, Buffalo.

North Carolina

The following order has been revoked: *To Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. R. F. YARBOROUGH, Louisburg.

North Dakota

To Camp Devens, Mass., base hospital, from New York, Lieut. J. B. TYRELL, Underwood.

To West Baden, Ind., for instruction, from Camp Grant, Lieut. A. J. KAESS, Fargo.

Ohio

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieut. A. N. VANDEMAN, Bellbrook.

To Camp Crane, Pa., as tuberculosis examiner, from Syracuse, Capt. A. FALLER, Cincinnati. Evacuation hospital, from New York, Capt. M. E. BLAHD, Cleveland.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. D. W. PALMER, Cincinnati.

To Camp McClellan, Ala., base hospital, from Fort Benjamin Harrison, Lieut. J. S. HUNTER, Jackson.

To Camp Wadsworth, S. C., for instruction, Lieut. H. D. FOWLER, Cleveland.

To Camp Zachary Taylor, Ky., from West Point, Ky., Major H. J. WARE, Cincinnati.

To Cape May, N. Y., from New York, Capt. B. B. NEWBAUBER, Cleveland.

To Fort Oglethorpe for instruction, Capt. C. LOUY, Toledo.

To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. W. A. KOCH, Bucyrus.

To New Haven, Conn., from Walter Reed General Hospital, Capt. J. T. MERWIN, Athens.

To New York, Bellevue Hospital, for instruction, and on completion *to their proper stations*, from Camp Sherman, Capt. J. K. TRESSEL, Alliance; Lieut. C. G. McPHERSON, Xenia; from Camp Upton, Lieut. J. B. SAMPSELL, Van Wert; from Camp Zachary Taylor, Capt. P. F. KING, Alliance.

To San Antonio, Texas, Kelly Field, from Fort Wayne, Lieuts. H. L. MECKSTROTH, Dayton; W. H. BENNER, Tiffin; F. A. COBB, Toledo; from Garden City, Lieuts. C. H. VEROVITZ, Cleveland; F. E. HALL, Springfield; from West Point, Miss., Lieut. J. M. PUMPHREY, Mount Vernon.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. I. JENKINS, Cincinnati.

Oklahoma

To Camp Upton, N. Y., base hospital, from New York, Lieut. R. I. ALLEN, Nowata.

To Hoboken, N. J., evacuation hospital, from Camp Meade, Capt. J. H WHITE, Muskogee

Oregon

To Fort Oglethorpe for instruction, from New York, Lieut. G. N. PEASE, Portland.

Pennsylvania

To Camp Abraham Eustis, Va., from Fort Oglethorpe, Lieuts. M. A. BARBOUHR, Johnstown; W. C. DIESS, Sharpsburg.

To Camp Crane, Pa., evacuation hospital, from Camp Greene, Lieut. J. H. HARTWELL, Philadelphia; from Camp Meade, Lieut. F. C. CARR, Swarthmore. Mobile surgical unit, from Fort Oglethorpe, Capt. C. A. HILL, Pittsburgh.

To Camp McClellan, Ala., base hospital, from Camp Crane, Lieut. H. I. NEWCOMET, Reading.

To Camp Sherman, Ohio, base hospital, from New York, Capt. T. A. STEELE, McKeesport.

To Camp Wheeler, Ga., base hospital, Lieut. H. B. ANDERSON, Philadelphia.

To Camp May, N. J., from Fort Oglethorpe, Lieut. W. S. REESE, Scranton.

To Fort Benjamin Harrison, from Camp Crane, Lieut. R. Z. COPE, Telford; from Camp Grant, Lieut. A. H. MOORE, Philadelphia.

To Fort McHenry, Md., from New York, Lieut. A. B. HAMILTON, Freeland.

To Fort Niagara, N. Y., Capt. J. H. W. ANDERSON, Pittsburgh.

To Fort Oglethorpe, from Camp Pike, Lieut. G. D. SCHOONMAKER, Philadelphia. As instructor, from Lakewood, Major J. McFARLAND, Philadelphia. For instruction, from Washington, Lieut. R. NEBINGER, Danville.

To Garden City, N. Y., as tuberculosis examiners, from Syracuse, Capts. J. S. CRAWFORD, Pittsburgh; C. M. MALONE, Shamokin.

To Lakewood, N. J., from the Surgeon-General's Office, Major R. PEMBERTON, Philadelphia.

To Lawrenceville, N. J., from Camp Dix, Capt. O. A. JONES, Sharon.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. F. BAKER, Philadelphia.

To New York, from Camp Upton, Capt. A. W. SHERRILL, Pittsburgh.

To Richmond, Va., from Fort Oglethorpe, Major D. H. BERGEY, Philadelphia.

To San Antonio, Texas, Kelly Field, from Camp Dick, Capt. W. S. SHIMER, Philadelphia; from Garden City, Capt. W. L. SCOTT, Joffre; from Middletown, Pa., Lieut. P. G. ATKINSON, Pittsburgh.

To San Diego, Calif., Rockwell Field, as flight surgeon, from Fort Sill, Major J. H. McKEE, Philadelphia.

To Schenectady, N. Y., from Lakewood, Lieut. W. N. JOHNSON, Philadelphia.

To Walter Reed General Hospital, D. C., for instruction, and on completion *to Fort Des Moines, Iowa,* from Fort Oglethorpe, Lieut. F. L. MORROW, Braddock.

To Washington, D. C., for conference, and on completion *to Hicks, Texas,* Taliaferro Field, for conference, and on completion *to Houston, Texas,* Ellington Field, as flight surgeon, from Mineola, Capt. C. WILLIAMS, Philadelphia. On completion *to San Antonio, Texas,* Brooks Field, as flight surgeon, from Mineola, Lieut. J. FLEITAS, Philadelphia.

To West Point, Ky., from Camp Zachary Taylor, Lieut. H. A. D. BAER, Abington.

Philippine Islands

To Washington, D. C., for instruction, from Philippine Department, Major C. L. BEAVEN

Rhode Island

To West Baden, Ind., from Camp Hancock, Lieut. J. F. KENNEY, Pawtucket.

South Carolina

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. G. H. WALTER, Orangeburg.

To Fort Benjamin Harrison, from Camp Crane, Lieut. A. S. BEHLING, St. George.

To Fort Howard, Md., from Fort Riley, Lieut. L. F. ROBINSON, Pickens.

To Fort Oglethorpe, evacuation hospital, from Camp Wadsworth, Major C. B. EARLE, Greenville.

To Newport News, Va., from Camp Morrison, Lieut. R. M. FULLER, McCormick.

The following order has been revoked: *To Madison Barracks, N. Y.,* from Fort Oglethorpe, Capt. M. CROOK, Spartanburg.

South Dakota

To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Shelby, Lieut. F. I. PUTMAN, Sioux Falls.

To Newport News, Va., from Camp Morrison, Capt. W. F. BUSHNELL, Elk Point.

Tennessee

To Camp Alfred Vail, N. J., from Indianapolis, Lieut. W. T. BUCK, Henderson.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. E. D. MITCHELL, Memphis.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. E. E. MILLER, Nashville.

To Camp Shelby, Miss., from Fort Oglethorpe, Capt. J. H. McCALL, Huntington.

To Camp Wadsworth, S. C., from Camp Shelby, Lieut. H. D. MILLER, Johnson City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Camp Joseph E. Johnston, Lieut. G. T. WILHELM, Decatur.

To San Antonio, Texas, Kelly Field, as tuberculosis examiner, from Camp Custer, Lieut. E. C. SEALE, Nashville.

To Washington, D. C., from Camp Leach, Capt. L. A. STONE, Memphis.

Texas

To Camp Bowie, Texas, from Fort Oglethorpe, Lieut. G. C. FOX, Tell.

To Camp Colt, Pa., as camp sanitary inspector, from Fort Oglethorpe, Lieut. O. H. TALLEY, El Paso.

To Camp Dix, N. J., base hospital, from New York, Lieut. H. E. HOKE, Waco.

To Camp Hancock, Ga., as tuberculosis examiner, from New Haven, Major I. S. KAHN, San Antonio.

To Camp Jackson, S. C., base hospital, for instruction, from Fort Oglethorpe, Capt. F. P. HERFF, San Antonio.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. C. E. DURHAM, Hico.

To Camp Sherman, Ohio, as assistant sanitary inspector, from Fort Oglethorpe, Lieut. J. E. KING, Throckmorton. Base hospital, from New York, Lieut. E. D. RICE, Tyler.

To Corpus Christi, Texas, from Camp Cody, Capt. E. M. IRVIN, El Paso.

To Fargo, N. D., North Dakota Agricultural College, from Fort Riley, Lieut. A. L. JONES, Weatherford.

To Fort Sam Houston, base hospital, for observation and treatment, from Corpus Christi, Lieut. F. A. ALLIN, San Antonio.

To San Antonio, Texas, Kelly Field, from Dallas, Texas, Lieut. J. A. McCONNELL, Poolville; from Dayton, Ohio, Lieut. F. B. KING, Durango; from Hicks, Texas, Capt. H. CALDWELL, Corpus Christi.

To Washington, D. C., from Camp Logan, Lieut.-Col. C. M. WALSON.

Utah

To Camp Shelby, Miss., from St. Louis, Capt. A. A. BIRD, Magna.

Vermont

To Camp A. A. Humphreys, Va., to examine the command for nervous and mental diseases, from Plattsburg Barracks, Capt. S. L. GOODRICH, Waterbury.

To Camp Jackson, S. C., as orthopedic surgeon, from Walter Reed General Hospital, Lieut. B. E. WHITE, Brattleboro.

To Camp Knox, Ky., from Camp Sherman, Lieut. R. D. WORDEN, Montgomery Center.

To Mays Landing, N. J., from Northeastern Department, Lieut. H. L. TILLOTSON, Groton.

To San Antonio, Texas, Kelly Field, from Garden City, Lieut. R. H. BURKE, St. Johnsburg.

Virginia

To Camp Dodge, Iowa, as orthopedic surgeon, from Camp A. A. Humphreys, Lieut. R. M. BAKER, Edgehill.

To Camp Jackson, S. C., base hospital, for instruction, from Newport News, Capt. J. T. BUXTON, Newport News.

To Camp Shelby, Miss., as tuberculosis examiner, from Camp Zachary Taylor, Lieut. W. B. McILWAINE, III, Petersburg.

To San Antonio, Texas, Kelly Field, from Arcadia, Fla., Capt. B. BARROW, Barrow's Store.

The following order has been revoked: *To Camp Hancock, Ga.,* base hospital, from Fort Oglethorpe, Capt. C. T. PIERCE, Litwalton.

Washington

To Camp Crane, Pa., evacuation hospital, from Fort Riley, Lieut. H. H. SKINNER, North Yakima. Mobile hospital, from Army Medical School, Lieut. L. S. DEWEY, Okanogan.

West Virginia

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. L. J. LANICH, Coketon.

To Camp Sheridan, Ala., to examine drafted men for cardiovascular diseases, from Lakewood, Lieut. L. E. STUBBS, Gloucester.

To Camp Wadsworth, S. C., from Camp Sevier, Lieut. C. E. PEERY, War.

To Detroit, Mich., from Camp Greene, Major H. D. HATFIELD, Huntington.

To Fort Oglethorpe, evacuation hospital, from Camp McClellan, Capt. E. B. WRIGHT, Richmond. For instruction, Lieut. R. H. WALKER, Charleston.

To Hamilton, N. Y., Colgate University, from Columbus, Lieut. I. R. LESAGE, Huntington.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Wheeler, Lieut. W. A. NOBLE, Welch.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Camp Devens, Mass.,* base hospital, Capt. H. H. CARR, Fairmont.

Wisconsin

To Camp Crane, Pa., evacuation hospital, from Camp Grant, Capt. P. A. FOX, Milwaukee.

To Camp Jackson, S. C., base hospital, from New Haven, Lieut. U. J. DURNER, Milwaukee.

To Camp Zachary Taylor, Ky., base hospital, from New York, Lieut. W. C. DARLING, Milwaukee.

To Carlisle, Pa., from Camp Crane, Capt. W. HECKER, Beloit.

To Detroit, Mich., from Camp Custer, Lieut. S. J. SEEGER, Milwaukee.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Sherman, Lieut. W. J. WINNEMANN, Athens.

To San Antonio, Texas, as tuberculosis examiner, from Camp Dodge, Capt. C. H. MEYST, Burlington.

To Washington, D. C., from Camp Meade, Major J. R. McDILL, Milwaukee.

To Willoughby, Ohio, from Fort Oglethorpe, Lieut. R. M. CAMPBELL, Milwaukee.

The following order has been revoked: *To Camp Gordon, Ga.,* base hospital, from Army Medical School, Capt. F. A. McJUNKIN, Milwaukee.

Wyoming

To San Antonio, Texas, Kelly Field, from Wichita Falls, Texas, Lieut. J. T. McBRIDE, Dayton.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Sen. Surg. J. H. WHITE, relieved from duty at the Marine Hospital, Memphis, Tenn. Directed to proceed to Washington, D. C., for duty with the U. S. Army.

Surg. W. C. BILLINGS, proceed to San Diego, Calif., to investigate the public health value of contemplated improvement.

Surg. E. A. SWEET, proceed to Cheyenne, Wyo., to assist in administration in influenza control measures.

Surg. W. H. FROST, directed to undertake epidemiological studies in regard to the recent epidemic of influenza, with headquarters at Washington, D. C.

Passed Asst. Surg. EMIL KRULISH, proceed to Alaska for duty in the suppression of influenza.

Asst. Surg. R. R. SAYERS, proceed to Brunswick, Ga., to investigate sanitary conditions at the Government Picric Acid plant at that place.

Asst. Surg. R. I. DESAUSSURE, proceed to Charleston, W. Va., for inspection of methods employed in combating influenza. Relieved from duty in connection with the suppression of influenza. Proceed to Columbia, S. C., for duty in extracantonment sanitation.

Asst. Surg. C. P. ESKEY, proceed to Montgomery, Ala., for duty in extracantonment sanitation.

Asst. Surg. CHARLES ARMSTRONG, report to the director, hygienic laboratory, for duty in investigations in regard to the prevention, etiology and treatment of influenza.

Asst. Surg. THOMAS FARRAN, Jr., proceed to Washington, D. C., and New York City for conference in regard to medical and sanitary work at Muscle Shoals, Ala.

Prof. E. B. PHELPS, proceed to Penniman, Va., to supervise investigations of T. N. T. poisoning.

Prof. CARL VOEGTLIN, proceed to Penniman, Va., to supervise investigations of T. N. T. poisoning.

Phar. G. I. VAN NESS, Jr., relieved at Honolulu, Hawaii. Proceed to Boston Quarantine Station, Gallops Island, Mass.

Acting Asst. Surg. H. N. COLE, address the annual state conference on venereal disease control at Chillicothe, Ohio, Nov. 24-26.

Acting Asst. Surg. G. J. LONGSTREET, proceed to the Boston Quarantine Station for duty in investigations of influenza.

Acting Asst. Surg. A. H. PILLSBURY, proceed to necessary points in the states of Maine, New Hampshire, Vermont, Rhode Island and Connecticut in conection with instructions to drafted men to be carried out under Service supervision.

Acting Asst. Surg. J. E. YOUNG, relieved from duty in the suppression of influenza and the control of trachoma, proceed to Florence, Ala., for duty in the Muscle Shoals sanitary district.

Consulting Engr. C. N. SAVILLE, proceed to Newport, R. I., via Providence to investigate and advise in regard to the increase of the public water supply of that city.

Regional Field Director LESTER FEISTEL, proceed to necessary points in the states of Arizona, Utah, Nevada and California in connection with instructions to drafted men, to be carried out under Service supervision.

Regional Field Director H. G. SPAULDING, proceed to necessary points in the states of Nebraska, Kansas, Oklahoma, Texas and Arkansas in connection with instructions to drafted men, to be carried out under Service supervision.

Physiological Chemist J. M. JOHNSON, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Asst. Chemist, E. J. CASSELMAN, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Scientific Asst. M. A. CONNELL, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Scientific Asst. M. M. CRANE, proceed to Penniman, Va., for duty in investigations of T. N. T. poisoning.

Statistician E. L. SYDENSTRICKER, proceed to Baltimore, Md., and other places to collect data relative to the epidemiology of influenza.

Bact. G. J. PFAU, proceed to Brunswick, Ga., for duty in laboratory investigations of malaria and other diseases at the Government Picric Acid Plant.

Scientific Asst. ELLA C. BOYER, proceed to necessary points in the field for investigations of industrial fatigue.

San. Inspector R. C. SIMPSON, relieved at Newport News, Va., proceed to Petersburg, Va., for duty in extracantonment sanitation.

Microscopist MARY RAYMOND, proceed to Brunswick, Ga., for duty in laboratory investigations of malaria and other diseases at the Government Picric Acid Plant.

Microscopist MILDRED STINGLEY, proceed to Brunswick, Ga., for duty in laboratory investigations of malaria and other diseases at the Government Picric Acid Plant.

Resignation of Assistant Surgeon LYNNE A. FULLERTON accepted by the President, to be effective Oct. 31, 1918.

Occupational Disease as Distinguished from Industrial Accident.—The Ohio Supreme Court in a recent decision made the following distinction between an occupational disease and an industrial accident, which, as the *Ohio State Medical Journal* for April says, will be of interest to those engaged in the industrial side of public health work. The court says: "A disease contracted in the natural and ordinary course of employment, by a person engaged in a particular calling or occupation, which disease from common experience is known to be a usual and customary incident to such calling or occupation, is an 'occupational disease,' and not within the contemplation of the workmen's compensation law." It is also said with reference to a particular case: "The accidental and unforeseen inhaling by an employee, in the course of his employment, of a specific volatile poison or gas, resulting in injury or death, is not an occupational disease."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Upholds Ordinance Regarding Closing.—The supreme court of the state has upheld the validity of an ordinance of the city of Los Angeles prohibiting public gatherings during the epidemic of influenza. The court denied a writ of habeas corpus in the case of five citizens of Los Angeles who, in defiance of the prohibiting ordinance, were arrested for holding a service in the Christian science church. The constitutionality of the health ordinance was attacked.

ILLINOIS

Restrained from Halting Hospital Work.—In the superior court, November 9, Judge Foell issued a temporary injunction restraining the village of Broadview from interfering with the construction of a hospital which is being erected at Speedway Park.

Illegal Practitioners Arrested.—Milton Chaiken of Joliet, who was recently arrested by the Department of Registration and Education of the State of Illinois and fined $75 and costs for violating the Medical Practice Act, was again arraigned in court and fined $50 and costs on each of six counts. Chaiken was employed in the office of a so-called advertising physician in Joliet. When the physician was out of the office Chaiken would diagnose cases and write prescriptions, signing the name of the physician to them.——Julia Badurak, also of Joliet, was arrested by the department and fined $100 and costs for practicing medicine without a license.

Campaign in Illinois for Tuberculosis Sanatoriums Successful.—In the election held November 5, thirty-three of the 102 counties in Illinois voted affirmatively on the levy of a county tax of 3 mills or less for the construction of tuberculosis hospitals and the establishment of nursing, clinic and dispensary service in each county. The campaign plan prepared by the Illinois Tuberculosis Association provided for widespread publicity and personal contact by local workers with the families of the various counties. The general direction of the campaign was in the hands of Walter B. Thurber, executive secretary of the Illinois Tuberculosis Association, and a staff of three field workers and the chairman of each county committee made up the board directing the campaign. This election gives Illinois a total of forty such institutions as compared to none two years ago.

Chicago

Influenza and Pneumonia Deaths.—The combined reports of influenza and pneumonia in Chicago for the months of September and October, covering the wave of influenza, show that there were 7,930 deaths.

Personal.—Dr. Truman W. Brophy has returned after three months spent in the treatment of facial and head wounds in France.——Dr. Gerhardt E. Wyneken resigned from the faculty of Loyola University, October 4.——Dr. Willis O. Nance, who has been a member of the city council for eight years and for seven years has been chairman of the council committee on public health, was elected trustee of the Sanitary District of Chicago, at the recent election.——Dr. Franklin A. Weatherford, while making a professional call, October 24, suffered a cerebral hemorrhage and is seriously ill at the Englewood Hospital.

INDIANA

Provision for Returned Tuberculous Soldiers.—According to a statement by M. E. Foley, chairman of the state council of defense, only 370 beds have been provided in the entire state for returned tuberculous soldiers, and more than 90 per cent. of the counties of the state have made no provision for the care of such men.

Personal.—Dr. J. Clifford Wallace has been appointed deputy health officer of Fort Wayne.——Dr. Eric A. Crull, city health commissioner of Fort Wayne, has resigned to enter the military service.——Dr. Lindley H. Eshleman, Marion, is reported to be seriously ill with an infection of the leg.——Dr. Henry W. Greist, Monticello, has been

appointed health commissioner of White County, to succeed Dr. Alfred C. Williams, Reynolds, who has resigned to enter the military service.——Dr. Charles P. Cook, New Albany, is said to be critically ill with pneumonia.

Camp Faces Crisis.—Boehne Camp, the tuberculosis sanatorium of Vanderburg County, is facing a critical financial situation. Unless $25,000 is raised for the support of the camp, the institution will be forced to close. The cost of maintaining the hospital until January 1 will be $13,000, including the payment of back debts and general running expenses. The barracks, now nearly completed, which will accommodate from fifty to sixty soldiers cannot be opened until a mess hall and kitchen have been erected to care for the needs of these men. The influenza epidemic is believed to have increased the predisposition toward tuberculosis. These three factors unite in making the situation urgent.

Reappearance of Influenza.—On November 18 the Indianapolis Board of Health issued an order providing for the universal wearing of cloth masks in all public places in the city and the closing of the public schools. This action was taken on account of the very serious recrudescence of epidemic influenza in the city, and on account of its apparent reappearance in various communities throughout the state. The situation in Indianapolis is described as being as serious as at any time during the epidemic, and in addition to the closing of the schools and the order requiring masks, which was to be in full force by November 20, the matter of again closing theaters and other places of public gathering, including the churches, was under advisement. City Health Officer Dr. H. G. Morgan attributes the new accession of the disease to carelessness of the people during the recent war celebrations. Reports received at the office of the state board of health show that the disease is also spreading throughout the state. Thirty-eight counties reported 1,439 new cases for the week end. Green County reported 135 new cases, Vigo 158, Cass 77, Decatur 60, Grant 63, Jasper 70, Laport 65, Clay 66 and Switzerland 54. Among the places reporting a more serious condition with regard to influenza are Frankfort, with 46 new cases, November 18; Columbus with 30; Rockville, where it is said there were more cases than at any time during the epidemic, and Alexandria, Brazil, Shelbyville, Seymour and Huntingtoñ.

MARYLAND

Board Meeting to Be Omitted.—Owing to general conditions and the limited number of inquiries concerning the December examination for licensure, the Board of Medical Examiners of Maryland announces that it has determined to omit the usual December meeting.

Government to Study Influenza Here.—Dr. Wade H. Frost and a staff of assistants from the United States Public Health Service visited Baltimore during the past week for the purpose of studying the recent epidemic of Spanish influenza in the city and state. They were given access to the records of the state department of health and the city health department.

Personal.—Dr. Daniel Z. Dunott, Baltimore, has been named chairman of the Committee on Health and Medical Relief of the United States Railroad Administration, which work includes all railroads in this country.——Dr. Ralph B. Seem, acting superintendent of Johns Hopkins Hospital, Baltimore, sustained a severe wrench of the shoulder, and Dr. Benjamin R. Benson, Cockeysville, suffered contusions in a collision between automobiles near Cockeysville, October 28.

MASSACHUSETTS

Hospital Items.—It is announced in the Boston papers that papers are about to be signed under which the Parker Hill Hospital property, controlled by the Women's Charity Club and the Massachusetts Women's Hospital Corporation, will be transferred to the government. This building with seventy-five beds will be used for headquarters for nurses, especially those who work in the Robert Bent Brigham and Elks hospitals.——Edward S. Searles, Methuen, has offered to build a hospital near Lawrence for the treatment of patients residing in Lawrence, Methuen and Andover.

NEW YORK

Planning Venereal Disease Hospital for Syracuse.—At the suggestion of Dr. David M. Totman, health officer of Syracuse, the mayor of that city, after a conference with a number of prominent citizens, has appointed a committee to choose a building that can be converted into an isolation hospital for cases of venereal disease.

Personal.—Dr. John W. LeSeur has been appointed acting health officer of Batavia in the place of Dr. Victor M. Rice, who has accepted a captain's commission in the United States Army.——Dr. John A. Wyeth is confined to his bed in the Polyclinic Hospital with a broken ankle, caused by slipping and falling on a polished floor.

New York City

Hospital Transferred.—The trustees of the New York Polyclinic Hospital have proposed to transfer the property of that institution to the Columbia University to be maintained for the public, and for advanced instruction and research in medicine and surgery. The hospital was built in 1912, and has a capacity for 300 patients.

Lecture on Pasteur.—Dr. Etienne Burnet of the Pasteur Institute, Paris, surgeon in the French army and member of the Mission of French Scholars to the United States, delivered a lecture at the New York Academy of Medicine in cooperation with Columbia University, November 15, on "Pasteur as a Representative of the French Scientific Spirit."

Red Cross Gifts.—The Atlantic Division of the Red Cross will receive $1,000,000 from the estate of James A. Schrymser. This is said to be the largest single bequest the organization has ever received.——The employees of the supply department of the Brooklyn Navy Yard have raised money for a fully equipped ambulance for overseas service, which they have turned over to the American Red Cross.

The Influenza Toll in New York.—An announcement from the health department, November 16, states that although new cases of influenza continue to be reported the epidemic is practically over in this city. From the beginning of the outbreak until November 16, 128,558 cases have been reported and 19,091 cases of pneumonia, with 20,086 deaths from the two causes. It is estimated that in the Bronx there were 40,000 cases, while only 18,000 were reported.

Dinner to Bastianelli.—The Italian Medical Society of New York City recently gave a dinner to Lieut.-Col. Bastianelli of the Italian army. Dr. Carmelo Atonna, president of the society, in his introductory remarks, suggested that Colonel Bastianelli should do all in his power in Rome to bring about an interchange of medical professors between the United States and Italy, and in his reply Dr. Bastianelli agreed to this and urged the Italian medical fraternity of New York to unite in an effort to form a real Italian medical center.

Plan Great Chemical Institute.—At a recent meeting of the New York branch of the American Chemical Society held at the Chemists' Club, resolutions were passed proposing the organization of an American Chemical Institute under the auspices of the American Chemical Society, whose special function shall be to promote research with a view to the introduction of new or improved medicinal products, so as to make the United States free of any future effort to control this field by German manufacturers. In the discussion of the resolution Dr. Phoebus A. Levene of the Rockefeller Institute gave the project his earnest support.

Harvey Society Meeting.—At the annual meeting of the Harvey Society held in September, the following officers were elected: president, Dr. Graham Lusk; vice president, Dr. Rufus J. Cole; secretary, Dr. Karl M. Vogel, and treasurer, Dr. F. H. Pike. It was decided that the lectures to be given this winter should not exceed six, and that the lectures of last winter and this winter be given in one course, the members to be charged with dues for one year only to cover the dues of activity. The two lectures which had been arranged to be held, one by Dr. Stewart Paton, Princeton, N. J., on "The Psychology of the Aviator," and the other by Dr. Alonzo E. Taylor, Philadelphia, on "The World's Food Situation," have been postponed on account of the departure of the lecturers for Europe. The following lectures have, however, been provisionally arranged:

Jan. 11—Col. Eugene R. Whitemore, Infectious Diseases in the Army.
Jan. 25—Dr. R. N. Yerkes, Psychological Examination of the Soldier.
Feb. 8—Dr. Yandell Henderson, Physiology of the Aviator.
March 1—Dr. Frederic S. Lee, Industrial Fatigue.
March 15—Col. F. P. Underhill, War Gases.

OHIO

Personal.—Dr. Fletcher Langdon, Cincinnati, has been appointed bacteriologist of the Cincinnati Board of Health, to succeed Dr. Philip H. Dorger, who has been ordered to report to Yale University for training in the Medical Reserve Corps.

Follow-Up Work on Tuberculosis.—Up to November 1, discharges of soldiers for tuberculosis reported to the state authorities amounted to 865. Of these, there were only 125 recorded to the state department of health as not found. The others have been referred to local public health nurses, reached by letters or visited by nurses from the state department of health. Of the Ohio soldiers discharged on account of tuberculosis, thirty-one have been placed in hospitals.

Reorganization of Local Health Machinery.—The state board of health is formulating plans for the reorganization of the local health administrative system. The chief defects are the lack of trained men in the local health administrative work and the absence of control over local health officials by the state department of health. The proposed plans call for the grouping of the 2,200 health districts of the state into larger units, able to support efficient local health organizations. The coming of peace will aid by releasing for public health work many men who have received training in sanitary work of the Army.

Recrudescence of Influenza.—A bulletin of the state department of health, November 16, says that in some communities of the state, following the permission of the state board to local health officers to determine when the influenza ban should be lifted, premature action resulted in a recrudescence of the disease. In some districts the ban was lifted in cities and towns when the disease was still prevalent in rural surrounding territory, with the result that the country people came to town to attend movies and other public places, again scattering the infection. The general situation with regard to influenza, however, was much improved, and United States Public Health Service physicians sent into the state to help out are being rapidly released.

PENNSYLVANIA

Personal.—Dr. Glenn M. Pierce, McKeesport, who has been confined to his bed for four weeks with influenza and pneumonia, is reported to be convalescent.

Quarantine Lifted.—The quarantine for epidemic influenza was almost entirely lifted from the state, November 9, the only exceptions being a few counties in which conditions have not improved. Among the exceptions are Blossburg, Scottdale, Jeannette, Monessen and Vandegrift, Carnegie, Oakdale, Calamity, Unity Mills, Forest County, Newport, Perry County, Muncy, Renovo, Bitumen, Snowshoe, Sandy Ridge, Hyndman, Broad Top, Liberty, Osceola Mills, Three Springs, Robertsdale, Forest City, Dunmore and Arnot counties.

Bucks County Medical Society.—The Bucks County Medical Society held its annual session, November 13, at Monument House, Doylestown. Dr. B. Franklin Royer, acting commissioner of health, was a guest of honor. The following officers were elected: president, Dr. Isaac S. Plymire, Doylestown; vice presidents, Dr. William F. Weisel, Quakertown, and Dr. James Collins, Bristol; secretary-treasurer, Dr. Anthony F. Meyers, Blooming Glen; censors, Dr. George M. Grim, Ottsville; Dr. William R. Cooper, Point Pleasant, and Dr. Howard Pursell, Bristol.

Philadelphia

Influenza Declining.—During the week ending November 8, there were 375 deaths from influenza and pneumonia, 218 from the former and 157 from the latter. The total fatalities for the week were 802, as compared with 1,771 the previous week and more than 5,000 at the height of the epidemic.

Hospital Bequests.—The Episcopal Hospital eventually will receive $5,000 from the estate of Mrs. E. C. Swartz, to endow two beds, one for men and the other for women "engaged in or connected with the publishing, printing or writing for newspapers in Philadelphia, as a memorial to my late husband, Edward J. Swartz," former editor-in-chief of the *Evening Telegraph.*

Hospital Taken by United States.—Hahnemann Hospital, having been taken over by the government, has been made central receiving and examining station for medical student applicants who desire to go to the officers' training camps. Col. John A. Lockwood is in charge of the work at the hospital, which is to be devoted entirely to obtaining officers for the Medical Corps, although those selecting infantry, machine gun or artillery will be examined and, if qualified, sent to camps devoted to those branches.

Epidemic Orphans to Be Cared For.—A preliminary conference of representatives of various aid organizations met in the office of Director Krusen to plan for the care of children made orphans by the death of their parents during the recent epidemic of influenza. The organizationss represented were the Emergency Aid Committee, the National Congress of Mothers, the Division of Child Hygiene, Department of Public Works, the Social Service Department, Philadelphia General Hospital and the Children's Aid Society. It was decided to make an appeal to the public for subscriptions for a fund of $50,000 for their care and maintenance.

Campaign for Pennsylvania Hospital.—The Pennsylvania Hospital's drive to raise $1,000,000 to enlarge its equipment began the first week in November. Nearly 30,000 letters have been sent out, stating the needs of the hospital and telling of its accomplishments since its establishment, 167 years ago. According to the report of the board of managers, there was a deficit of $116,000 last year and this year it threatens to be greater. In the last year more than 50,000 patients were treated at the Pine Street department, the majority of whom paid nothing. Since the branch for nervous and mental diseases was opened in West Philadelphia, more than 19,000 cases have been treated, 7,000 being restored to normal. The expense of the charity department last year reached $174,000 and of the mental department, $142,000.

Personal.—Dr. J. H. Mason Knox, Baltimore, assistant director, children's bureau. American Red Cross in France, addressed the Philadelphia County Medical Society and Babies' Welfare Association, November 13, on "What the American Red Cross is Doing for French Children, and Its Application at Home."——Major Raymond G. Hussey deliverd the Gross Lecture before the Pathological Society of Philadelphia, November 14, his subject being "Army Medical Laboratory Work in France."——Dr. Mary E. M. Loog has been appointed assistant school medical inspector.——Dr. Alonzo E. Taylor, former professor at the University of Pennsylvania, sailed for Europe, November 16, to be Mr. Herbert Hoover's assistant in the task of rationing Germany. Dr. Taylor will represent both the food administration and the war trade and it is expected that he will go to the Balkans and take charge of the situation there.——Major John W. H. Pollard, U. S. M. C., has been appointed attending surgeon of the Army for the city of Philadelphia.

TENNESSEE

Personal.—Dr. Matthew C. McGannon, Nashville, has been appointed chairman of the British Recruiting Mission for the Nashville District.——Dr. Ben H. Brown, former food inspector of Chattanooga, has been appointed director of health of the city.——Dr. Owen K. Womack has been appointed local surgeon for the Louisville and Nashville system at McKinnon.——Dr. Eugene L. Bishop, Columbia, has been appointed state director of rural sanitation and state epidemiologist.

Hospital News.—Accommodation for ninety-two nurses has been provided at the Knoxville General Hospital, in a nurses' home which is now almost completed. This home takes in the buildings formerly used by the Tennessee Medical College and the laboratory.——Two tent-houses are to be erected at the United States Marine Hospital, Memphis. They will have wooden floors and will be weatherboarded for about 4 feet from the floor, and will be used as quarters for sufferers from tuberculosis.——A health resort is to be erected in the Lookout Mountain Hospital on the top of Lookout Mountain by Dr. Clair C. Patch, Graysville.——The board of directors of the East Tennessee Sanatorium for Tuberculosis has submitted to the government plans for a building and has requested permission to build. The plans provide to accommodate fifty patients, and the cost will be about $40,000.

TEXAS

New Hospital.—Formal approval of plans for a modern military hospital on the grounds of the State Agriculture College, College Station, is reported by the president. The hospital will be a frame construction, and will cost about $56,000.

Personal.—Dr. William W. Samuell, Dallas, who has been seriously ill with influenza, is reported to be convalescent.——Dr. H. Reid Robinson, Galveston, who has been seriously ill at St. Paul's Sanitarium, Dallas, is reported to be improving slowly.——Dr. Oscar H. Mengel, Frackville, is ill at his home with pneumonia following influenza.

WISCONSIN

Fees Held by County.—Hundreds of dollars, fees for making out birth certificates, are awaiting Milwaukee physicians and midwives in the office of the county clerk.

Emergency Hospital Opened.—An emergency hospital has been opened by the local Red Cross chapter in the Garfield School building, Washburn, for the care of cases of influenza.

Personal.—Dr. Arthur G. Benson, Viroqua, who has been seriously ill with pneumonia following influenza, is now believed to be out of danger.——Dr. Wilbur G. Melaas, Beloit, is reported to be seriously ill with rheumatic arthritis.

Sanatorium News.—Work will begin within a few days on the excavation for the tricounty tuberculosis sanatorium to be built by Bayfield, Madison and Iron counties, at Salmo, about 5 miles north of Washburn. The name adopted for the sanatorium is the Pureair Sanatorium and the buildings will be erected at a cost of about $68,000.——A sanatorium has been offered to the Madison Anti-Tuberculosis Association by Dr. Charles H. Vilas. The sanatorium consists of five buildings on a site in Blooming Grove. It is equipped with heating furnaces and grates, an electric light and power system, artesian water, intercommunicating telephones and furnishings. This is offered to the association by Dr. Vilas in memory of his mother, Esther Smilie Vilas. The gift of Dr. Vilas was accepted by W. S. Heddles, at the meeting of the association, October 8. Dr. Louis R. Head, Madison, president of the association, is to be director of the hospital.

WYOMING

Personal.—Dr. Horace P. Holmes, for many years a practitioner of Sheridan, is reported to have been adjudged insane, October 15, and to have been committed to the State Hospital, Evanston.——Dr. J. Hoyt Huckins has been appointed superintendent of the Wyoming School for Defectives, Lander, to succeed Dr. Thomas G. Maghee.——Dr. John H. Young, San Diego, surgeon of the Union Pacific Gold Company at Rock Springs for the last eighteen years, was presented with a gold watch and fob by the officials and employees of the company, recently, in recognition of his services as company physician.

CANADA

Personal.—Col. George E. Armstrong, C. M. G., Montreal, will read a paper before the Academy of Medicine, Toronto, December 3, on "The Effect of the War on Surgery, Civil and Military."——Capt. Charles F. Atkinson, C. A. M. C., Edmonton, Alta., has been awarded the military cross.——Col. Gilbert Royce, M. D., has returned to Toronto from overseas.

Total of Canadian Casualties.—Ottawa issued, November 15, statistics as to the Canadian casualties up to that date. More than 55,000 Canadian soldiers have given up their lives in the war, all the casualties totalling 213,268, but these will be increased after the returns for Mons are in. To date the casualties are: killed in action, 35,128; died of wounds, 12,048; died of disease, 3,409; presumed dead, 4,620; missing, 842; wounded, 154,361; prisoners of war, 2,860.

Influenza Statistics for Toronto.—Dr. Charles J. C. O. Hastings, Toronto, medical officer of health, has compiled the following figures relative to the deaths from influenza and pneumonia: under 1 year of age, 44; from 2 to 9, 146; under 10 years of age, 190; from 10 to 19, inclusive, 126; from 20 to 29, 455; from 30 to 39, 376; from 40 to 49, 94; from 50 to 59, 63; from 60 to 69, 31; from 70 to 79, 24; 80 years and over, 4, and ages not known, 15. With a population of 490,000, there were 1,614 deaths.

GENERAL

Æsculapians Meet.—The second annual meeting of the Æsculapian Society of the Wabash Valley was held at Terre Haute, Ind., this month. Dr. Joseph Hall, Westfield, Ill., was elected president.

Cancellation of Appeal for Collection of Scrap Platinum.—The chief of the section of medical industry and the chief of the platinum section announce to the doctors and dentists of the country their appreciation of the hearty response made to the call for scrap platinum, and request that no further scrap platinum be turned to the government through the channels indicated in their previous communication.

Bequests and Donations.—The following bequests and donations have recently been announced:

Malden, Mass., Hospital, $5,000 by the will of Mary Benson, Brooklyn.

United Charities, Chicago, $25,000; Chicago Home for Incurables, Home for the Friendless and Visiting Nurses' Association, each $10,000 by the will of George R. Thorne, Chicago.

Russell Sage Institute of Pathology, New York City, an endowment fund of $300,000, Adirondack Cottage Sanatorium, $25,000 by the will of Mrs. Russell Sage, New York City.

Twelve thousand dollars for the construction of a hospital for the white race, and a similar amount for provisions for negroes of the community by the will of R. J. Reynolds, Winston-Salem, N. C.

Report of Medical Commission to Ecuador.—During the summer a commission of which Dean Arthur I. Kendall, Prof. Charles A. Elliott and Prof. H. E. Redenbaugh of the Northwestern University Medical School, Chicago, were members, was sent by the Rockefeller Foundation to Ecuador to make a study of disease prevention on the west coast of South America, having in view a greater trade with that region after the war. The commission returned in October after having been well received and given every facility for the study of the questions involved, the chief of which is the prevention of yellow fever. The report will be issued soon.

Cooperative Tuberculosis Campaign. — As previously announced, the Red Cross will not conduct a Red Cross Seal campaign this year. To take the place of funds raised by this means in fighting tuberculosis the Red Cross will appropriate to the National Tuberculosis Association, $2,500,000. This will be distributed by the national association to the various state anti-tuberculosis associations and not to any local organizations, except in a few instances where independent seal campaigns have been conducted, as in New York City, Brooklyn and Pittsburgh. The appropriations will be made quarterly to the various state organizations, beginning about January 1. The state organizations will have full power to distribute the funds throughout the respective states. It is expected that each state will receive an amount equal to that heretofore raised by the sale of seals, but the exact amount cannot be stated at this time. The Red Cross will secure the money appropriated for the tuberculosis campaign by its campaign for members which will be conducted this fall. Complete arrangements with reference to the membership campaign will be announced soon.

FOREIGN

Italian Scholarship in Great Britain.—The *Riforma Medica* states that the Italian government has presented 300 pounds sterling to the Ramsay Fund, instituted in London to encourage the study of the chemical sciences. A scholarship will be assigned in Great Britain to some Italian chemist.

New Degree at Birmingham University.—As announced, May 23, 1918, by Sir Oliver Lodge, principal of Birmingham University, a degree corresponding to the Ph.D. degree will be granted at Birmingham to foreign students who enter the university for higher study. This is one of the outcomes of the war, and is intended to provide for graduate students who will not now want to go to Germany as many students formerly did.

Medical Students of Switzerland.—In the five universities of Switzerland, 1,725 students were enrolled during the summer semester. These were distributed as follows: at Basle, 220, including 174 Swiss, of whom 15 were women, and 46 foreign, of whom 4 were women; Berne, 385, including 242 Swiss, of whom 27 were women and 143 foreign, of whom 16 were women; Geneva, 381, including 163 Swiss, of whom 16 were women and 218 foreign, of whom 58 were women; Lausanne, 225, including 159 Swiss, of whom 13 were women, and 66 foreign, of whom 16 were women, and Zurich, 504, including 350 Swiss, of whom 56 were women, and 154 foreign, of whom 16 were women.

Deaths in the Profession Abroad.—Marchese **E. Laureati** of Pisa, for two years assistant in Maragliano's medical clinic at Genoa and later assistant at the surgical clinic at Pisa after having served for two years with an Italian expeditionary force in Africa.——Dr. **E. Pena,** director at one time of the Assistencia Publica of Buenos Aires and long member of the city council. He had returned recently from an official trip to Europe to study sanitary methods.——Dr. **H. Hoessli,** director of the Balgrist Orthopedic Institute at Zurich.——Lieut.-Col. **E. F. H. Dobson** of the Indian Medical Service, retired, lost when the *Hirano Maru* was torpedoed off the coast of Ireland.——Dr. **J. Ubeda y Correal,** inspector in chief of the medical department of the Spanish army and a leading figure in the profession in Spain.

Novaro's Retirement.—Prof. G. F. Novaro retires this year from the chair of clinical surgery at the University of Genoa, having reached the age of 75. He is a senator of the realm, and was one of the pioneers in surgery in Italy. He is said to have been the first in any land to apply gastro-enterostomy in treatment of ptosis; he also did typhlostomy for colitis, and a number of operations on the esophagus, common bile duct, etc., which at that time, as the *Riforma Medica* remarks, had not received the sanction of a foreign name. As early as 1890 his publications on the surgery of the stomach were

based on extensive experience. He has presented his large library to the city of Genoa, and a special hall has been set apart for it. Funds have been appropriated or are being collected to maintain this Novaro hall permanently as an up-to-date medical library in the public library building.

CORRECTION

Incorrect Report of Death of Capt. Warren Walker.—In the October 26 issue of THE JOURNAL it was noted that Capt. Warren Walker, M. C., U. S. Army, was burned to death, October 9, at Colonia, N. J. THE JOURNAL was advised that there was a Captain Walker burned to death at this time but not the Captain Walker referred to in the item, that one having been promoted to a majority and is in active service in the office of the Surgeon-General, Washington, D. C.

LONDON LETTER

LONDON, Oct. 31, 1918.

The Influenza Epidemic

Influenza is still widely prevalent and is imposing a great strain on physicians, who are exhausted in having to visit so many patients. Some are unable to complete the round of all the patients on their lists. In the ninety-six great towns of England and Wales, with an aggregate population estimated at 16,500,000, the number of deaths attributed to influenza last week was 4,482, of which 1,256 were in London. These figures refer only to the civil population. The deaths in London attributed to influenza amounted to nearly half the deaths from all causes. At this time of year the normal number of deaths from influenza would be only 5. The figures in the preceding three weeks were 17, 80 and 371. The effect of influenza is further shown in the rise of the general death rate. In the first week of October this corresponded to an annual rate of 12.6 per thousand, in the second week to 15.1, in the third to 20.7, and in the fourth to 30.9. Numerous conferences have taken place between representatives of the Local Government Board, the Board of Trade, and naval and military authorities, and bacteriologic investigations have been continuously made since the beginning of the summer outbreak. These show that bacteriologically this outbreak does not differ from other outbreaks of influenza, fatalities being due to secondary infections, chiefly by pneumococci and streptococci. The suggestion has been made that its severity is due to lowered nutrition consequent on food restriction; but of this there is no proof. Sir A. Geddes, minister of national service, replying to a question in Parliament as to what steps he had taken to provide an adequate medical service for the civil population in view of the present serious epidemic of influenza, said that all arrangements made in connection with the employment of physicians under the ministry of national service and all withdrawals of physicians from civil life for service with the armed forces of the crown during the past year have been made with full regard to the contingency of a widespread epidemic disease affecting the population. Influenza has been more or less prevalent in epidemic form for some months, and the calls on the civil medical profession have consequently been heavy. Simultaneously, severe fighting on a great scale in all theaters of war has imposed an additional heavy strain on our medical resources. In April, Parliament conferred powers on the minister of national service that enabled him medically to examine men of military age at any time. In view of possible emergencies this power was largely used, approximately 7,000 physicians being employed and very large numbers of men being examined. Concurrently, with the increase of influenza, the number of physicians employed on medical board work has been reduced, thereby rendering an increasingly large body of physicians available for exclusively civil practice. The number of medical board sessions has been reduced from approximately 3,500 to 1,000 a week. This has not affected recruiting, as the pool formed by examining men in advance has been sufficient to maintain the flow of men to the forces. In order further to reinforce the physicians available to attend the civil population, all medical examinations in advance are to be suspended for the present.

A conference of bacteriologists to discuss preventive vaccination for influenza has been held at the War Office under the chairmanship of Col. Sir William Leishman. The majority of those present agreed that there was considerable doubt as to the primary etiologic significance of *Bacillus influenzae* of Pfeiffer, and considered that the existence of some as yet undiscovered virus must be regarded as possible. They had, however, no doubts as to the frequent presence of Pfeiffer's organism in this epidemic, or as to the great importance of the part it played in the production of the symptoms and complications of the disease. The organisms most frequently associated with *B. influenzae and* chiefly responsible for the gravity of the secondary pulmonary complications were pneumococci and streptococci. It was unanimously agreed that a vaccine might prove valuable produced from *B. influenzae*, the pneumococcus and the streptococcus. A number of strains and types of each organism recently isolated from cases of the epidemic should be used. The first dose should consist of 30 millions of *B. influenzae*, 100 millions of pneumococcus and 40 millions of streptococcus. A second dose of twice these numbers should be given after ten days. While it would be preferable to vaccinate before exposure to infection, the vaccine need not be withheld from a body of men among whom influenza had already appeared, excepting those who have fever or are obviously ill.

Prevention of Anthrax

The departmental committee appointed in 1913 to inquire into precautions for preventing danger of infection from anthrax in the manipulation of wool, goat hair and camel hair has issued its report. Among the most important recommendations is the abandonment of the attempt to control anthrax by regulations as being totally inadequate. The committee states that the simplest, cheapest and most effective method of preventing anthrax in the various branches of the wool trade is by disinfection of wool and hair abroad. It is recommended that the British government should establish the disinfection authority and should then take steps to obtain the cooperation of the governments of other countries.

The Standardization of Clinical Thermometers

Under the Defense of the Realm regulations, the Ministry of Munitions has ordered that no clinical thermometer shall be sold which has not been tested and approved by the director of the National Physical Laboratory. For one month after the date of the order, no thermometer showing at any point in its registration of temperature an error of more than 0.4 F. will be approved. On the expiration of this period, no thermometer shall show an error exceeding 0.2 F. over the range up to 106 F. Above this temperature, the error shall not exceed 0.3 F. For thermometers graduated in degrees other than Fahrenheit, corresponding tolerances will be allowed. A thermometer will not be approved if it is not self-registering with a constriction, which must be such as to retain the index column and also allow of the mercury being reset. Approved thermometers will be marked with the National Physical Laboratory trade mark and the year of test. The charge for testing a thermometer will be 6 cents, including carriage to sender.

PARIS LETTER

PARIS, Oct. 24, 1918.

Treatment of War Wounds of Nerves

This subject was discussed at the recent Twenty-seventh French Congress of Surgery, especially from the standpoint of remote results of treatment. So far as indication for operation is concerned, the majority of the surgeons who spoke were in favor of such intervention, in spite of the teachings of the neuropathologists of Bordeaux, who claim that surgical intervention in wounds of nerves is not only useless but harmful because it interferes with the regeneration of the nerve. Dr. Walther of Paris stated that operation is not performed often enough in these cases, hence too many of these men are incapacitated two and three years after the injury of the nerve because they had not been subjected to operation. This is due to the fact that for a long time physicians, and also some surgeons, have been opposed to radical resection, followed by suture or grafting, of injured nerves presenting evidence of a complete lesion and which were not responding quickly to medical treatment.

REMOTE RESULTS

Dr. Delâgenière of Mans presented some interesting statistics on 338 cases of wounded nerves in which surgical treatment was employed: resection and suture, 236 cases; resection and nerve grafting, 9 cases; neurolysis or nerve liberation, 113 cases. Resection and suture was followed by 88 per cent. of successes; the 9 grafting cases yielded 3 good results and 6 failures; neurolysis has given good results only in cases of simple compression of the nerve. Dr. P. Wiart of Paris has full data on the remote results in 86 cases of projectile injury of the radial nerve in which he operated. There were 25 sutures and 61 liberations. Of the suture cases, a cure was obtained in 20 per cent. with improvement in as many more; among the neurolysis cases,

33 per cent. of cures were obtained and in 25 per cent. the patients were improved. These were all old cases, many of them being cases of long standing suppuration, with fractures. Operation done in recent cases, as early as possible, will yield far better results. Dr. L. Sencert of Nancy spoke on the subject of dead heteroplastic nerve grafts, applying to the human the experimental work done on animals by Dr. Nageotte. From a still-born calf the sciatic nerve is removed, placed in alcohol, and when sterilization is sufficient the graft is placed between the ends of the divided nerve and sutured in place. This method has given good results experimentally on animals, and Sencert has used it in the human for a loss of substance of 10, 12 or 13 cm. of the nerve. Sencert recommends the use of this method, in preference to other graft methods, in all cases in which there is a considerable gap in a nerve.

Treatment of Tuberculosis with Injections of Saccharose

For some time one of the daily papers has made a strong propaganda in favor of the treatment of tuberculosis according to the method of Dr. Lo Monaco of the University of Rome. Inasmuch as the readers of The Journal have been interested in this method, it will be interesting to refer to some experiments that have been made in France.

At the last meeting of the Société de thérapeutique, Dr. Louis Rénon and Dr. Mignot reported the results of their researches on the treatment of human and experimental tuberculosis by means of injections of saccharose. Guinea-pigs were inoculated with tubercle bacilli and then injected with saccharose. The disease was not modified in any way. In fact, these guinea-pigs died sooner than others similarly inoculated but not injected with saccharose. Among the humans the results were also negative, not only in the pulmonary cases but also in the bone and peritoneal cases of tuberculosis. Therefore, the authors conclude that these injections are ineffective in both experimental and human tuberculosis. Dr. Sergent of Paris, who has also investigated Lo Monaco's method, stated that while there was a slight, but inconstant, improvement in the general condition of the patient, manifested merely as a state of *bien-être* (well-being), the evolution of the disease was not modified. Dr. Robin of Paris has arrived at the same conclusion as the previous speakers. These clinical and experimental observations show that Lo Monaco's method does not possess the marvelous efficacy with which it is endowed by the lay press.

Less Stringent Regulations on Flour Consumption

M. Victor Boret, minister of agriculture and food commissioner, has submitted to the president of the Republic a decree authorizing for use as food the flour of all cereals, such as corn, rye, méteil (a mixture of wheat and rye) and buckwheat, the use of which was prohibited during the war except for baking bread. But the use of these cereals will be permitted only for purposes already authorized and within very narrow limits. However, the decree amplifies the bread and flour tickets. Henceforth, a 100 gram ticket entitles the holder to 80 grams of regulation bread (in lieu of 50 grams) and 75 grams of flour (in lieu of 50 grams), as heretofore.

Death of Dr. Braillon

Dr. Braillon, professor of clinical medicine in the Ecole de médécine et de pharmacie at Amiens, died from an infection contracted from our wounded soldiers to whom he was ministering.

Marriages

Lieut. Lucius Lamar Terry, M. C., U. S. Army, Bessemer, Ala., on duty with the Thirty-First Division, Camp Wheeler, Ga., and now overseas, to Miss Bess Gilder of Carbon Hill, Ala., recently.

Prentiss Edward Parker, Bourg, La., to Miss Annie Mainer Williams of Livingston, Texas., at New Orleans, October 11.

Asst. Surg. Richard Parker Bell, Lieut. (j. g.) U. S. Navy, assigned to duty on *U. S. S. Charleston*, to Miss Dunham of Lakewood, Cleveland, October 26.

Lieut. Pierre Numa Charbonnet, M. C., U. S. Army, New Orleans, to Miss Blanche Joan Rogers of Winfield, Kan., at Waynesville, N. C., October 22.

John Allan Wyeth, New York City, to Miss Marguerite Chalifoux of Boston, November 15.

Deaths

Lieut.-Col. Alexander Watson Williams, M. C., U. S. Army ✠ Johns Hopkins University, Baltimore, 1912; aged 34; honor graduate and medalist Army Medical School, 1914; who entered the Army in September, 1913; and after duty at Texas City, Texas, was ordered to Manila, where he served from March, 1916, to November, 1917, as captain and major Medical Corps; and on his return to the United States organized and equipped for overseas duty Hospital Train No. 29, at Fort Benjamin Harrison, Ind.; was on duty at Camp Sherman, Chillicothe, Ohio, in March, 1918; and was ordered to Camp Lee, Va., in April, 1918, to organize, equip and command Base Hospital No. 45, American Red Cross, Richmond, Va., and went overseas with his command, July, 1918, died in France, October 5, from illness.

John Errington Ker, Kingston, Jamaica, M.R.C.S., England, 1887; L.R.C.P., London, 1888; aged 58; chairman of the quarantine board and central board of health, Kingston, Jamaica; civil surgeon attached to General Hospitals, Nos. 2 and 3, South African Field Forces during the Boer War; who had come to New York, three weeks before, to study sanitation, died from meningitis in the Post-Graduate Hospital, New York City, October 25.

Died in the Service
IN FRANCE
Lieut.-Col. A. W. Williams, M. C.,
U. S. Army, 1884-1918

Frank E. Bissel, Minneapolis; University of Wooster, Cleveland, 1869; aged 73; a veteran of the Civil War; for several terms mayor of Litchfield, Minn., and a member of the legislature from Meeker County in 1875; from 1901 to 1903 surgeon to the Soldiers' Home; and for one term surgeon of the Department of Minnesota, G. A. R.; died at his home, November 5.

Carl Lawrence Souder ✠ Columbia City, Ind.; Northwestern University Medical School, Chicago, 1898; aged 44; who served one year in the Medical Reserve Corps, U. S. Army, and was honorably discharged, April 12, 1918, on account of physical disability; died in the Lutheran Hospital, Fort Wayne, Ind., October 25, from meningitis following an operation for sinusitis.

Asst. Surg. William Henry Buffum, Lieutenant, U. S. Navy ✠ Providence, R. I., Harvard Medical School, 1902; aged 41; a specialist in pediatrics; one of the officers of the Rhode Island Naval Hospital Unit, which started overseas a few weeks ago; died in a hospital in Liverpool, England, October 13, from pneumonia following influenza.

Edward A. Whitmore ✠ Leadville, Colo.; Gross Medical College, Denver, 1896; aged 65; for several years secretary and once president of the Lake County, Colo., Medical Society in 1915; local surgeon of the Denver and Rio Grande Railroad; city physician from 1900 to 1902; died at his home, November 8, from influenza.

Vishwas Ramual Karmarkar, Pittsburgh; University of Pennsylvania, Philadelphia, 1918; aged 27; a native of India, who was preparing for medical missionary work in his native country; an intern in the Allegheny General Hospital, Pittsburgh, died in that institution, October 10, from pneumonia following influenza.

Walter Scott Mountain, Confluence, Pa.; Philadelphia University of Medicine and Surgery, 1870; aged 80; a member of the Medical Society of the State of Pennsylvania; surgeon

of U. S. Volunteers during the Civil War and thereafter a druggist of Confluence; died at his home, about October 29, from influenza.

Roy Francis Rogers, Springfield, Ill.; Rush Medical College, 1901; aged 42; a member of the Illinois State Medical Society; a member of the Aesculapian Society of the Wabash Valley, and of the staff of St. John's Hospital, Springfield; died at his home, October 21, from pneumonia following influenza.

Capt. Alfred Glascock, M. C., U. S. Army ✠ Washington, D. C.; George Washington University, Washington, D. C., 1902; aged 37; formerly a member of the staff of St. Elizabeth's Hospital, Washington; while serving as psychiatrist at a base hospital in the interior of France, died from pneumonia, October 10.

Died in the Service
IN FRANCE
CAPT. ALFRED GLASCOCK, M. C.,
U. S. ARMY, 1881-1918

Howard Kerns ✠ Granite Falls, Minn.; University of Maryland, Baltimore, 1909; aged 42; a specialist in tuberculosis; secretary of the Yellow Medicine County Medical Society, and Camp Release District Medical Society; died at his home, October 17, from bronchopneumonia following influenza.

Newton Phineas Smith, Montville, Conn.; College of Physicians and Surgeons in the City of New York, 1882; aged 66; a member of the Connecticut State Medical Society; also a pharmacist; for thirty-five years a practitioner of Norwich; died at his home, October 3, from cerebral hemorrhage.

Elizabeth Cowan Sleight ✠ Mount Vernon, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, 1893; aged 60; resident physician of the Auxiliary Hospital, Mount Vernon; died at her home, November 5, from pneumonia following influenza.

George Oswell Griffin, Greenville, S. C.; Medical College of Georgia, Augusta, 1901; aged 41; who entered the ministry soon after his graduation, and was pastor of the Third Presbyterian Church of Greenville; died at his home, October 9, from pneumonia following influenza.

George Cerny, St. Louis; St. Louis College of Physicians and Surgeons, 1913; aged 44; a member of the Missouri State Medical Association; and a member of the eye, nose and throat staff of Barnes Hospital, St. Louis; died at his home, September 13, from pneumonia.

George Guyer Gill ✠ Fairview, Pa.; Jefferson Medical College, 1910; aged 35; first assistant physician at the State Hospital for the Criminal Insane, Fairview, Pa., a specialist in psychiatry; died at his home, November 4, from pneumonia following influenza.

Paul Rimer Doron, Phoenix, Ariz.; Washington University, St. Louis, 1905; aged 35; who went as a volunteer from Phoenix, to assist in the fight against influenza at Bisbee, Ariz., died about October 31, at his home, from pneumonia following influenza.

Wilhelm Rudolph Fisher ✠ Wichita, Kan.; Northwestern University Medical School, Chicago, 1909; aged 33; a member of the staff of St. Francis' Hospital, Wichita; died in a hospital in that city, November 6, from bronchial pneumonia following influenza.

Albert Beilstein, Jr., Northampton, Pa.; University of Louisville, Ky., 1908; aged 32; a member of the Medical Society of the State of Pennsylvania; assistant physician of Dr. Haff's Hospital, Northampton; died at his home, October 27.

Lieut. Thomas Purley Johnston, M. C., U. S. Army ✠ Mount Gilead, Ohio; Ohio State University, Columbus, 1910; aged 36; who sailed for France, September 27, died in an American Base Hospital in France, October 7, from pneumonia.

Capt. Claude Melville Campbell, M. C., U. S. Army ✠ Decorah, Iowa; Northwestern University Medical School, Chicago, 1910; aged 33; on duty at Fort Riley, Kan.; died at Glencoe, Minn., October 23, from pneumonia following influenza.

Lewis Hasbrouck Kemble, Aspen, Colo.; University of Michigan, Ann Arbor, 1889; aged 51; surgeon of U. S. Volunteers during the Spanish-American War; died in Glenwood Springs, Colo., October 15, from **heart disease.**

Gardner Holway Osgood, Boston; Boston University, 1909; aged 39; roentgenologist of the Massachusetts General Hospital; died in the Evans Memorial Building of that institution, October 18, from pneumonia following influenza.

Calvin Fuller Kyte ✠ Jersey City, N. J.; New York University, New York City, 1881; aged 68; visiting physician to X-Street Hospital, Jersey City, attending physician to Christ Hospital, Jersey City; died at his home, November 8.

John Edwin Sclanker, San Francisco; College of Physicians and Surgeons, Los Angeles; 1918; aged 34; an intern in the Southern Pacific General Hospital, San Francisco; died, October 15, from pneumonia following influenza.

Louis W. Salvin, Boston; Boston University, 1914; aged 31; a member of the Massachusetts Medical Society; died in the Massachusetts Homeopathic Hospital, Boston, September 25, from pneumonia following influenza.

Harlow Comstock McLeod, Mexico City, Mexico; College of Physicians and Surgeons in the City of New York, 1898; formerly of Batavia; was shot and killed in Mexico City, October 17, in an argument over the war.

Frederick Wheaton Baylies, Burlington, Vt.; University of Vermont, Burlington, 1897; aged 47; instructor and adjunct professor of chemistry in his alma mater for two years; died at his home, October 23, from influenza.

Lieut. Grover Carter, M. C., U. S. Army ✠ Memphis, Tenn.; University of Tennessee, Nashville, 1917; aged 26; who had been overseas since October, 1917, serving first in England, in a base hospital, and later assigned to duty with the British Army in Flanders, and attached to the One Hundred and Twenty-First Brigade, Royal Flanders Artillery; was killed by a shell, October 16, while attending a wounded officer.

Died in the Service
IN FRANCE
LIEUT. GROVER CARTER, M. C.,
U. S. ARMY, 1892-1918

Richard Daingerfield Bagnall, Hampton, Va.; University of Pennsylvania, Philadelphia, 1860; aged 80; surgeon in the Confederate Service during the Civil War; died at the Dixie Hospital, Hampton, Va., November 1.

Sigurd Anton Berg, Granite Falls, Minn.; Rush Medical College, 1905; aged 38; a member of the Minnesota State Medical Association; died at his home, October 11, from pneumonia following influenza.

William Rupert Bebout, Browning, Mont.; Starling Medical College, Columbus, Ohio, 1905; aged 39; an officer of the United States Indian Service; died at his home, October 30, from pneumonia following influenza.

William I. Newberry, Smithfield, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1896; aged 47; died at his home, October 30, from pneumonia following influenza.

Warren H. Loomis, Lockport, N. Y.; Long Island College Hospital, Brooklyn, 1878; aged 63; a member of the Medical Society of the State of New York; died in the City Hospital, Lockport, October 30, from influenza.

Lieut. Frank Leonard Hammerstrand, M. C., U. S. Army ✠ Sacred Heart, Minn.; University of Illinois, Chicago, 1909; aged 37; died in a hospital in New York City, October 26, from pneumonia following influenza.

Died in the Service
IN FRANCE
LIEUT. WINFIELD S. FAULDS, M. C.,
U. S. ARMY, 1873-1918

Lieut. Winfield Scott Faulds, M. C., U. S. Army ✠ Roy, Mont.; Dearborn Medical College, Chicago, 1906; aged 45; commanding Camp Hospital No. 7, Thirty-Third Division, in France; died recently from pneumonia.

B. Bywaters, Van Ormy, Texas; Cincinnati Medical College, 1858; aged 80; postmaster and justice of the peace of Van Ormy for thirty-five years; died at his home, August 18, from inflammation of the bladder.

Thomas Hudson Weirich, Wellsburg, W. Va.; University of Michigan, Ann Arbor, 1873; aged 70; a member of the West Virginia State Medical Association; died at his home, November 5, from pneumonia.

Edward Elliott Morgan ✠ North Henderson, Ill.; Keokuk Medical College, College of Physicians and Surgeons, 1905; aged 36; died at his home, November 1, from pneumonia following influenza.

Lieut. Burton Robert Carpenter, M. C., U. S. Army ✠ Clifton, Texas; Fort Worth, Texas, School of Medicine, 1912; aged 29; ordered for duty at Fort Riley, Kan.; died at Clifton, October 25.

Guy Henry Just ✠ Pukwana, S. D.; University of Illinois, Chicago, 1900; aged 44; chairman of the Brule County Board of Health; died at his home, November 9, from pneumonia following influenza.

Hezekiah W. Brant, Geyser, Mont.; Hahnemann Medical College, Chicago, 1888; aged 62; at one time a member of the Medical Association of Montana; died at his home, October, 31, from influenza.

James Edward Culbert, Buffalo, N. Y.; Niagara University, Buffalo, 1892; aged 52; a member of the Medical Society of the State of New York; died at his home, October 26, from pneumonia.

Nimrod Terrell Underwood, Russellville, Ala.; University of Alabama, Mobile, 1888; aged 57; a member of the Medical Association of the State of Alabama, died at his home, October 27.

Christian Zbenden, Toledo, Ohio; Homeopathic Hospital College, Cleveland, 1882; aged 72; a member of the staff of Toledo Hospital; died in that institution, October 31, from pneumonia.

Stephen Joseph Metzger ✠ Akron, Ohio; Western Reserve University, Cleveland, 1910; aged 38; coroner of Summit County, Ohio; died at his home, November 9, from pneumonia.

Robert Coleman Kenner, Louisville, Ky.; University of Louisville, Ky., 1879; aged 59; formerly editor of the *Therapeutic Record,* died at his home, October 28, from heart disease.

Russell Tomlinson Bishop, Savannah, Ga.; Bellevue Hospital, Medical College, 1893; aged 63; for many years a practitioner of Bridgeport, Conn.; died in Savannah, October 18.

Milton C. Vest, Greensburg, Ind. (license, Indiana, 1897); aged 68; for one term coroner of Decatur County; for forty-three years a practitioner; died at his home, November 5.

Lawrence T. Carr ✠ Martinsburg, Mo.; Keokuk, Iowa, Medical College, College of Physicians and Surgeons, 1908; aged 29; died at his home, October 24, from pneumonia.

William Joseph Fretwell, San Jose, Calif.; Missouri Medical College, St. Louis, 1888; aged 50; died at his home, November 1, from pneumonia following influenza.

Herbert Holden Thomas ✠ Huntsville, Ala.; University of Tennessee, Nashville, 1908; aged 36; died at his home, October 7, from pneumonia following influenza.

John Homer Eudy ✠ Deport, Texas; Memphis, Tenn., Hospital Medical College, 1913; aged 32; died at his home, October 5, from pneumonia following influenza.

Zygmond Anthony Oborski, Wilkes-Barre, Pa.; George Washington University, Washington, D. C., 1917; aged 24; died at his home, November 1, from pneumonia.

Clark S. Wood ✠ Fort Smith, Ark.; Jefferson Medical College, 1908; aged 41; died in Sparks Hospital, Fort Smith, October 21, from pneumonia following influenza.

Lieut. Louis Robert Kratze, M. C., U. S. Army ✠ Chicago; University of Illinois, Chicago, 1912; aged 35; died recently at Camp Crane, Allentown, Pa., from influenza.

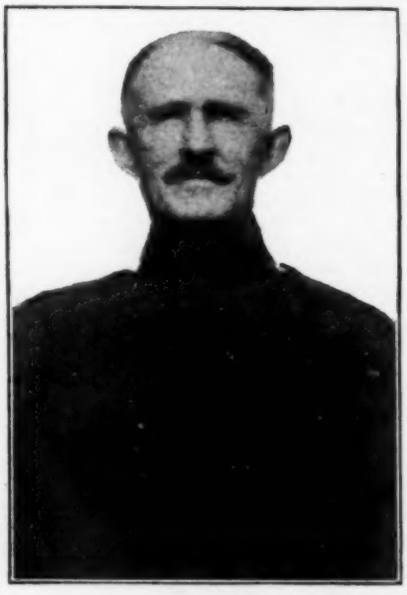
Dr. Antonio Onato, for six years surgeon on an Italian passenger steamer between America and Italy; aged 39; died at Gibraltar, in October, from influenza.

Francis M. Hyatt, Auburn, N. Y.; Hahnemann Medical College, Philadelphia, 1873; aged 71; physician to the Auburn City Hospital, died at his home, October 31.

Lafayette Reese, Afton, Wyo.; Rush Medical College, 1910; aged 38; at one time a member of the Utah State Medical Association; died at his home, October 15.

Carey Val Billingsley, Santa Ana, Calif.; California Eclectic Medical College, Los Angeles, 1914; aged 30; died at his home, about November 3, from influenza.

Robert E. Steele ✠ Salt Lake City, Utah; University of Illinois, Chicago, 1895; aged 48; died at his home, November 4, from pneumonia following influenza.



Died in the Service
IN FRANCE
LIEUT. FRANKLIN M. HAWLEY, M. C.,
U. S. ARMY, 1863-1918

Lieut. Franklin Marshall Hawley, M. C., U. S. Army ✠ Bayfield, Wis.; Drake University, Des Moines, Iowa, 1883; aged 55; on duty in a hospital in France; died, October 24, from spinal meningitis.

John Henry MacDonald, New York City; New York University, New York City, 1886; aged 60; died at his home, November 9, from heart disease.

John Frederick Brott ✠ Doon, Iowa; Drake University, Des Moines, Iowa, 1897; aged 41; was found dead in bed from heart disease, October 30.

Jesse Judson Dearborn, Milford, N. H.; University of Kentucky, Louisville, 1905; aged 43; died at his home, October 16, from pneumonia.

Melchi Bonebrake, Taylorville, Ill.; University of Pennsylvania, Philadelphia, 1867; aged 75; died at his home, October 23, from heart disease.

Jule Conrad, Suring, Wis.; Milwaukee Medical College, 1900; aged 52; died at a hospital in Green Bay, Wis., October 27, from influenza.

H. Taylor Campbell, Nashville, Tenn.; University of Nashville, Tenn., 1875; aged 70; died at his home, November 5.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE KENNEDY'S TONIC PORT CASE

Booze Is Booze in Saskatchewan

When the sale of alcoholics is prohibited in a given territory, it is a notorious fact that the exploiters of those "patent medicines" whose chief and most active ingredient is alcohol, are not slow to avail themselves of the opportunity that presents itself of selling their wares to those who would use them for other than medicinal purposes. Nor is it strange that men who have previously been engaged in the liquor business, but whose business has been destroyed by prohibitory legislation, should seek to cater to their erstwhile customers by marketing liquor camouflaged as "patent medicines." Before the Dominion of Canada went "dry" some of the Canadian provinces had already enacted legislation of that type. Saskatchewan was one of them. Out of that provincial act and its aftermath, came the interesting Kennedy's Tonic Port Case.

Kennedy's Tonic Port was booze, sold as "patent medicine." Its conflict with the law came when a bottle of the preparation was sold at a Regina drug store in November, 1917. The Saskatchewan authorities proceeded against this concern and the drug store proprietors were convicted in March, 1918, and fined $100; they thereupon appealed the case on the ground that, as they had been registered under the "Patent Medicine Act" of the Dominion government, they were thereby relieved of the necessity of complying with any provincial law, relative to the sale of "patent medicines." The judge, before whom the appeal was heard, decided against the drug concern, dismissed the appeal and amended the conviction by penalizing the drug store $500 instead of the original $100.

The opinion handed down by Judge Taylor of the King's Bench, before whom the appeal was tried, is an interesting document in "patent medicine" litigation, as the excerpts about to be given will show. After briefly stating the facts regarding the original conviction, and showing that the evidence established not only that a bottle of Kennedy's Tonic Port had been sold as charged but that the drug store was in the active business of selling this preparation, having, in fact, disposed of almost 700 bottles in a few months, Judge Taylor continued:

How to Prevent Infection from SPANISH INFLUENZA
Liquid Sozodont
Making a Kolynos Gas Mask To Fight Spanish Influenza When Exposed to Infection
HOW TO USE VICK'S VAPORUB IN TREATING SPANISH INFLUENZA
SPECIAL NOTICE To The Public
BACARDI RON
Spanish Influenza
Help Your Health Board Conquer Spanish Influenza by Disinfecting Your Home
Lysol Disinfectant
SPANISH INFLUENZA RAPIDLY SPREADING
A personal offer to those who fear Spanish Influenza
Influenza? La Grippe?
INFLUENZA LA GRIPPE
MENTH-ALBA
Spurlock-Neal Co., Nashville
Grip
You are safe when you take Father John's Medicine
Influenza Warning! STOP THAT PAIN
CRIMSON HEAT
SPANISH INFLUENZA
Influ-Balm Prevents Spanish Flu

Of course the "patent medicine" manufacturers lost no opportunity of capitalizing the fear of the public in the present epidemic. Here are a few—just a few—advertisements reproduced in miniature. "Fortify yourself" against the Spanish Influenza by "Taking Famous Tanlac"—alcohol 16 per cent.! Make a "Gas Mask to Fight Spanish Influenza" by moistening two pieces of absorbent cotton with "Kolynos." Put a "few drops of Liquid Sozodont in a half glass of water," rinse out the mouth with the mixture, and "render pernicious germs harmless." Do you need "a powerful bulwark in preventing and treating" Spanish Influenza? Use "Benetol"! "No germ, no matter how great its strength, can live for an instant" in the presence of "Lysol"; hence, "Help Your Health Board Conquer Spanish Influenza," by the use of this preparation. "Influ-Balm Prevents Spanish Flu"; so, we are told, does "Laxative Bromo Quinine", but, in case you get the disease, you can get "relief in twenty minutes" by the use of "Men-Tho-Eze."

"The tonic port is a product or invention of one Joseph Kennedy. He claims to be a graduate of the British Society of Chemical Industry, and to be an expert in alcoholic chemistry. As he put it, he has spent most of a lifetime using alcohol as a solvent. For a period of 18 months, whilst the system of the licensing and sale of intoxicating liquor prevailed in Saskatchewan he was a hotel proprietor and licensee. The formula for the tonic port was, he says, conceived by him about 20 years ago, and was then put on the market by his then employers, whom he stated were a prominent manufacturing firm in the United States, under the name of 'Vitalito,' and it would appear that after the abolition of license in Saskatchewan he conceived the idea of placing this so-called tonic port on the market in Western Canada."

Of the composition of Kennedy's Tonic Port, it was admitted that the base of the preparation was ordinary port wine, to which Kennedy added a mixture which Judge

Taylor said "might best be termed a medical salad." Hyssop, dittany, Peruvian bark, orange peel, anise, coriander seed, genitan, yarrow, nutmeg, thyme, rose leaves—these were but some of the ingredients that were alleged to have been added, in quantities not disclosed, to the port wine. The amount of alcohol, however, was not unknown; it comprised about 16 per cent. by volume. The dose was a wineglassful, "equally efficacious before or after meals." The judge continued:

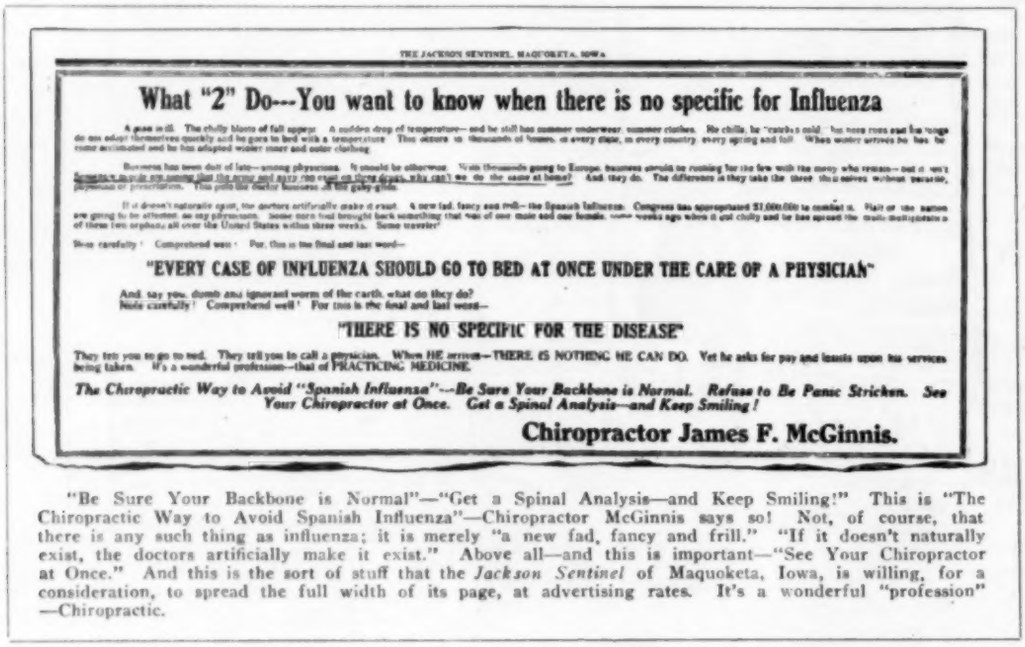
"As a medical salad this combination might be in great demand. The manufacturer says that it is a palatable mixture. No doubt every taste and palate should be tickled by the many different flavors. If it abhor the thyme for instance, it may find solace in the yarrow. Coriander seed would be delightfully reminiscent of home cooking, the esthetic will recognize the rose leaves. These and the six or more other ingredients in the above list added for their distinctive flavoring virtues and delightful aroma must indeed be designed to satisfy every demand. From cinchona and Peruvian bark, quinin is extracted and the manufacturer suggests that this and the gentian are valuable ingredients as cures for alcoholism. Thus there is a touch of philanthropy, though well concealed, in the salad. . . ."

"The method of manufacture, so far as the manufacturer cares to disclose the valuable secret, would not appear to interfere with the medicinal properties at least of the port wine, into which the combination is added by a method of solution into the alcohol constituent of the wine. It is still port wine, plus something indefinable. The color is that of port wine. One expert on the use of intoxicating liquors said that it tasted to him like ordinary port wine to which had been added a dash of a famous brand of 'bitters.' A number of witnesses who, in the interest of science for the most part, consumed on different occasions from a half to a whole quart bottle at what counsel termed 'a sitting,' deposed that it had a distinctly pleasing taste and produced that feeling of exhilaration which prior to the temperance legislation was recognized as intoxication. As to the aroma, the scientific tests made by counsel in the court room in his efforts to convince the provincial analyst that certain of the exhibits were not in a state of perfect preservation, convince the court that at least in that stage the aroma was strongly reminiscent of a busy bar-room."

Of course the manufacturer claimed that his "tonic port" had valuable medicinal properties and was incapable of being used as a beverage. He admitted that in 1917, the year in which Saskatchewan went "dry," the sales aggregated between $40,000 and $60,000, at the wholesale price of 75 cents a bottle. Moreover, like most "patent medicine" makers, he was able to produce at least one doctor who testified in his behalf that he had prescribed Kennedy's mixture as a "tonic." Said the judge, further:

"There is some dispute on the evidence as to whether or not there is so much quinin in the mixture that the use of it in doses beyond that prescribed on the label would be or would not be dangerous. A number of reputable witnesses swore that they consumed from half to almost a whole bottle without feeling any effects of quinin, and with the result obtainable ordinarily from drinking port wine. It is to be noted that on the label it is suggested that the use of this tonic port wine produces 'a feeling of buoyancy only attributable to perfect health.' I cannot conceive that any sober-minded person suffering from any known ailment and knowing the contents of the mixture and that it contained the list of drugs which I have enumerated, would take it. It may be that the manufacturer has in some way neutralized in the mixture the effect of the different drugs contained in it. To me it seems that it is simply port wine, plus an obnoxious mixture, and I cannot overlook the fact that the secret of its manufacture lay dormant in Kennedy's mind until the abolition of the license system, and that the time was then most opportune for its manufacture, and I have no hesitation in holding that the purpose in the manufacture is simply to have put on the market port wine available for purchase without a medical prescription and to circumvent the different provincial enactments preventing the sale of intoxicating liquor. The claim that it cannot be used as a beverage is absolutely refuted in the testimony, and in the quantity sold. . . ."

"On the facts I cannot find that it contains sufficient medication or any treatment to prevent its use as an alcoholic beverage. In fact, my view is that it would have little or no sale except as an alcoholic beverage."



THE JACKSON SENTINEL, MAQUOKETA, IOWA

What "2" Do---You want to know when there is no specific for Influenza

A gust in still. The chilly blasts of fall appear. A sudden drop of temperature—and he still has summer underwear, summer clothes. No chills, he "reckons cold" has never even set his tongue do nor adapt themselves quickly and he goes to bed with a temperature. This occurs in thousands of homes, in every state, in every country, every spring and fall. When winter arrives he has become accustomed and he has adopted winter wear and colder clothing.

Business has been dull of late—among physicians. It should be otherwise. With thousands going to Europe, business should be rushing for the few with the money who remain—but it isn't. Apparently people are running past the doctor and not even calling on their friends, who can't see do the same at home? And they do. The difference is they take the three thousand calves without necessity, physicians or prescriptions. This puts the doctor business at the very gates.

It doesn't naturally exist, the doctors artificially make it exist. A new fad, fancy and frill—the Spanish Influenza. Congress has appropriated $1,000,000 to combat it. Half of the nation are going to be affected, as my physicians. Some one has brought back something that was of our main and our friends. Some weeks ago when it got chilly and he has spread the germs indiscriminate of these two orphans all over the United States within three weeks. Some traveler!

Now carefully! Comprehend well! For, this is the final and last word—

"EVERY CASE OF INFLUENZA SHOULD GO TO BED AT ONCE UNDER THE CARE OF A PHYSICIAN"

And, say you, dumb and ignorant worm of the earth, what do they do?
Note carefully! Comprehend well! For this is the final and last word—

"THERE IS NO SPECIFIC FOR THE DISEASE"

They tell you to go to bed. They tell you to call a physician. When HE arrives—THERE IS NOTHING HE CAN DO. Yet he asks for pay and insists upon his services being taken. It's a wonderful profession—that of PRACTICING MEDICINE.

The Chiropractic Way to Avoid "Spanish Influenza"—Be Sure Your Backbone is Normal. Refuse to Be Panic Stricken. See Your Chiropractor at Once. Get a Spinal Analysis—and Keep Smiling!

Chiropractor James F. McGinnis.

"Be Sure Your Backbone is Normal"—"Get a Spinal Analysis—and Keep Smiling!" This is "The Chiropractic Way to Avoid Spanish Influenza"—Chiropractor McGinnis says so! Not, of course, that there is any such thing as influenza; it is merely "a new fad, fancy and frill." "If it doesn't naturally exist, the doctors artificially make it exist." Above all—and this is important—"See Your Chiropractor at Once." And this is the sort of stuff that the *Jackson Sentinel* of Maquoketa, Iowa, is willing, for a consideration, to spread the full width of its page, at advertising rates. It's a wonderful "profession" —Chiropractic.

Correspondence

IS INFLUENZA TRANSMISSIBLE DURING THE PERIOD OF INCUBATION?

To the Editor:—Sherman Institute is a United States government school for Indian boys and girls under the United States Indian Service, at Riverside, Calif. It is a boarding school, drawing pupils from the western United States, between the ages of 8 and 20, the average being about 15. The entire expense is borne by the United States Indian Service. All of the pupils and about sixty employees are housed in dormitories on the campus, an eighth of a mile square, in an orange-growing district in the city of Riverside, 6 miles from the business center.

September 28, there arrived at the school, in care of a matron, seven Navajo boys and five girls from the San Juan Reservation at Ship Rock, N. M. En route, coming through Arizona, they encountered a woman manifestly ill with influenza. They traveled for several hours in the same sleeper with her.

Monday, September 30, C. D., one of these boys, was taken ill and sent to the school hospital on the grounds. Some intuition suggested to Mrs. Neff, the nurse in charge, that something new had come to the campus and he was immediately isolated for a possible contagion. It was evident later that he had influenza.

The following Wednesday, October 2, influenza burst on us as a storm. On that day, five boys of the party from Ship Rock came to the hospital ill with influenza and with them six other boys and three girls, making fourteen cases the first day. The second day, October 3, twenty-seven were added; October 4, forty-four; October 5, seventy. By the 8th, Tuesday, our total count was 387 cases of typical influenza

INCIDENCE OF INFLUENZA AT SHERMAN INSTITUTE, RIVERSIDE, CALIF.

	Boys	Girls	Total New Cases	Total to Date
Sept. 30 Immediately isolated	1	...	1	1
Oct. 2	11	3	14	15
Oct. 3	25	2	27	42
Oct. 4	33	11	44	86
Oct. 5	44	26	70	156
Oct. 6	36	41	77	233
Oct. 7	41	44	85	318
Oct. 8	26	43	69	387
Oct. 9	9	30	39	426
Oct. 10	6	17	23	449
Oct. 11-22	33	36	69	518
Totals	265	253	518	
Total pupils present Oct. 1, 1918	257*	313	517	

Total pneumonias to October 25	52
Total deaths to October 25, all from pneumonia	8
Total number of employees and members of families on the grounds	85
Influenza among employees and families (no pneumonias, no deaths)	34
Total influenza patients on campus	552

*Several boys came in early in October. Almost no boys escaped entirely.

of the so-called "Spanish" type. The accompanying chart gives the picture of the incidence of the disease. The last column shows how our fifty-bed hospital was filled to overflowing and four dormitory buildings became emergency hospitals in four days.

CORNELIUS VAN ZWALENBURG, M.D., Riverside, Calif.

AN APPEAL FOR BELGIAN AND FRENCH PHYSICIANS

To the Editor:—I am writing on the birthday of that splendid patriot and monarch, King Albert of Belgium. I beg to remind my colleagues of the profession that now we shall be able to assist our Belgian and French colleagues who will be going back to their homes—in fact, are now going back to their homes in the territory evacuated by the barbarous Hun.

Money is especially needed now. The large number of instruments that I have acknowledged in THE JOURNAL from time to time have gone forward and more will be welcome; but, after all, the needs of these utterly destitute men can best be met by contributions in money. This money ought also to be forwarded as quickly as possible. I shall hope to send a large Christmas gift to Dr. Depage at LaPanne and the committee in Paris for the Belgian and French physicians, respectively. *Bis dat qui cito dat.*

W. W. KEEN, M.D., Philadelphia.

DEMOBILIZATION OF MEDICAL OFFICERS

To the Editor:—With the big war over—for all are agreed that the signing of the armistice ended the war—although theoretically we are in a state of war until the peace conference concludes its work, a goodly portion, if not a large majority, of the more than thirty thousand physicians in service are anxious to resume their civil status. While it is recognized that there is an immense work ahead of our military establishment and while the army of occupation will require a considerable number of medical officers, it is to be hoped that the War Department will adopt a policy of at least consulting the wishes of medical officers over 40 years of age, with dependents, and dependent on their professional incomes, before continuing them on the active list. Physicians of this age may resume their civil status after an absence of a year or eighteen months practically picking up their business where they left it, whereas if they are to become a part of the army of occupation or are kept on duty in camps throughout this country for the next year or two, they will practically have to reestablish themselves; no easy matter for the physician beyond 40 years of age. The writer, always an ardent supporter of organized medicine, and appreciating the efforts of the American Medical Association to secure justice on all occasions for its members, urges THE JOURNAL to forcibly bring this matter to the attention of the Surgeon-Generals of the Army and of the Navy. While all due honor and praise should be accorded the younger members of the profession who answered their country's call, it is believed that the greater sacrifice was made by those older men who, in a time of stress, although established in practice and surrounded with young families gave up all that made life dear to them by coming into the military service. These physicians should be returned to a civilian status as rapidly as possible.

(Signed) CADUCEUS.

PROTECTING THE EYES IN INFLUENZA EPIDEMICS

To the Editor:—The use of an efficient mask to cover nose and mouth has been thoroughly well exploited. Notes are beginning to come in now of nurses and others contracting influenza despite the use of masks and washing of hands. The fact that the eyes are exposed to mouth spray has been generally overlooked, and little reference, if any, has been made to the necessity of wearing some protection for the eyes. It is obvious that the eyes may be directly infected, or that the organisms falling on the eyes may be carried by the tear ducts to the nose, and therefore to the throat and mouth.

I have seen an instance in which diphtheria was contracted by a most careful physician who wore a mask and washed his hands, the fact being that the patient from whom he was taking a culture coughed directly into his eyes. He did not contract diphtheria of the eye, but of the throat. His exposure was limited to one evening when he relieved the regular man in charge of a diphtheria ward. It is well known that in the pneumonic form of the bubonic plague the necessity of precautions to cover the eyes as well as the nose and mouth is thoroughly well established.

H. W. HILL, M.D., St. Paul
Executive Secretary, Minnesota Public Health Association.

DISCONTINUANCE OF COMPATIBILITY TEST IN SERUM TREATMENT

To the Editor:—Numerous inquiries concerning compatibility tests, etc., have led us to offer the following suggestions for informal publication:

After consultation with reputable laboratory workers in Boston and New York, it was decided to discontinue the compatibility test of the donor's serum with the recipient's corpuscles. It would seem reasonable to believe that in all probability the donor's serum is so rapidly diffused and diluted in the blood stream that hemolysis and agglutination of a dangerous nature will not follow, whereas untoward reactions might result from introducing cells into a concentrated serum as in transfusion. Moreover, we have repeatedly given so-called "incompatible serums" to patients without the slightest untoward symptoms.

Further experience has led us to pool the serum from our donors. This simplifies the preparation and the administration of serum, and apparently gives more uniform results.

One of us, in a recent visit to New York, found physicians using 25 c.c. amounts of serum. Needless to say, in view of the serum therapy of "type" pneumonias, such dosage would hardly be expected to produce results. Our experience in the treatment of eighty cases points to at least 100 c.c., and as high as 200 c.c. of serum every eight hours, till results are obtained.

May we also suggest that the clinician must always be on the alert for a lobar pneumonia, due to a type pneumococcus, for which type serum might be useful.

L. W. MCGUIRE, M.D., and
W. R. REDDEN, M.D., Chelsea, Mass.
Lieutenant-Commander and Lieutenant, Junior Grade, respectively, U. S. Navy.

CONTROL OF THE COUGH IN INFLUENZA

To the Editor:—For the past month I have been on epidemic duty with the United States Public Health Service. Most of the cases that I have seen that have developed pneumonia have been complicated with a most rebellious cough. This has been so common in my own experience and with those with whom I have discussed this epidemic that it has occurred to me that this cough might be one of the causative factors of the pneumonia, either by producing trauma in some part of the respiratory mechanism which acts as an infection atrium, or by so lessening the resistance of the patient through loss of sleep, pain and exertion that he readily picks up the pulmonary infection.

The cough at first seems to be only irritative, for the patient expectorates but little; usually, however, after coughing almost incessantly for two or three days, he begins to spit up fresh blood; in another twenty-four or forty-eight hours this has changed to a typical "prune juice" sputum, with a fever of from 103 to 104 and the physical findings of bronchopneumonia.

In all my cases the cough was controlled completely with diacetylmorphin, from 1/12 to 1/6 grain, as circumstances may require. I am sure that a cough that is causing a patient great pain or interfering with sleep should certainly be controlled.

This may be regarded as quite commonplace, but I have seen so many cases in which the cough had not been controlled that perhaps a reminder of a commonplace might prove a decided benefit to the patient.

In this connection let me add that I see many physicians using heavy cough syrups with but little effect on the cough and usually producing nausea and gastric irritation, thereby making proper feeding impossible. Diacetylmorphin in tablet triturate form produces no such side-effects and is always most effective in the control of the cough.

Harry H. Myers, M.D., Shelby, Ohio.

"ATTITUDE OF CHRISTIAN SCIENTISTS IN THE PRESENT EPIDEMIC OF INFLUENZA"

To the Editor:—"The churches in Boston were not ordered closed by health authorities—merely requested," writes Walter H. Van Zwoll to The Journal, November 9. What were the Eddyites waiting for? A club? Mr. Hoover's early requests for food conservation were accepted at once by a large proportion of the American people. The more definite regulations and prohibitions did not appear until some time later. This cheerful compliance was a source of marvel to the New York correspondent of *L'Illustration,* Paris, who thereupon made the flattering comment, "I have said not once but twenty times that this is the best disciplined nation on the face of the earth—a request from the top is all that is necessary."

According to Carl Ackerman, the Eddyites in Berlin also believed in food conservation, but for an altogether different purpose. Immediately after the outbreak of war they laid by in store provisions in such quantities as to cause comment. Evidently "The Lord will provide" was construed as implying that He helps those who help themselves. Even that cheapest form of altruism which expresses itself liberally in assurances that all is well was for the moment possibly adjourned in the hurry to respond to the motivation of the main chance.

C. B. Burr, M.D., Flint, Mich.

A SIMPLE BLOOD STAIN

To the Editor:—Being dependent on a rather uncertain source for distilled water suitable for use with Wright's or Jenner's blood stains, I have finally found a method with which both "power house" distilled water and tap water may be used with success. Neither waters are filtered before use.

Webster's "Diagnostic Methods," Edition 5, and Simon's "Clinical Diagnosis," Edition 9, give different methods of preparing and using Pappenheim's panoptic stain, and by combining parts of each formula and method I have hit on a stain that is quick, clean and reliable (so far) for blood.

From Simon I make up Giemsa stain thus:

Azur II-eosin	3.0 gm.
Azur II	0.8 gm.
Glycerin, U. S. P. IX	125.0 c.c.
Methyl alcohol, acetone free	375.0 c.c.

Dyes are ground up in the alcohol and added to the glycerin.

To 150 c.c. of the foregoing solution I add 100 c.c. of Jenner's stain (1.5:1) and use thus:

I fix blood smears by immersion in this stain in a Coplin staining jar for one minute, and transfer directly, without shaking or washing, to a Coplin jar containing water, and after from two to five minutes' immersion wash briskly for a few seconds and stand the slide on its end to dry. Blotting is admissible.

Specimens are clear of precipitates, and when distilled water is used a characteristic panoptic picture is shown. Both single and double solutions seem to be stable, the Jenner stain that I use having been compounded seven months ago.

No originality is claimed; but if this method helps some one on a hurry-up job of staining, I shall rest contented.

Frank W. Lacy, Fort Lyon, Colo.

DIPLOCOCCI AS A FURTHER STAGE OF INFLUENZA BACILLI

To the Editor:—I wish to address an inquiry to clinicians and laboratory workers in reference to a conclusion based on studies of influenza. Has it occurred to any worker to associate the gram-positive diplococcus usually found intracellularly and extracellularly with Peiffer's bacilli as a further stage of the bacillus? My investigations have led me to a tentative conclusion that such is the case, analogous to the relationship of the fusiform bacilli and spirochetes in Vincent's angina.

John Lear, M.D., Allentown, Pa.
Pathologist, Allentown Hospital Association.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

FOLLICULAR OPENING IN EXTERNAL EAR A REMNANT OF BRANCHIAL CLEFT

To the Editor:—A few times I have noted, in adults and in children, a structure that I have never seen named nor described. It is a crypt or follicle or glandular opening in front of the upper portion of the external ear. It has the appearance that a pin prick would have in an inelastic material. In some cases a thick secretion issues from it. It is sometimes bilateral, sometimes unilateral. I presume it is a vestigial organ, but would like to know more about it.

James W. Walker, M.D., Chicago.

Answer.—The condition which is referred to is spoken of in the literature as fistula auris congenita, and is a remnant of the first or second branchial cleft. The fistula is due to an incomplete closure of one of these clefts. There is no connection between the fistula and the middle ear nor with the development of the external meatus. Politzer says it is "a short blind sac lined with epithelium, secreting a milky fluid." The external orifice is situated about one centimeter above the tragus, and one to two centimeters before the helix. If the opening of the fistula becomes occluded the secretion of the sac is retained and it gives rise to a cystic swelling (branchial cyst). The contained fluid may become infected and form pus. Politzer has never observed a bilateral case. The fistula may be accompanied by other anomalies of the ear such as congenital deformities of the external ear.

As a rule, fistula auris congenita does not call for any treatment. If there is a retention cyst or an abscess due to a collection of degenerate epithelial matter, or if there is a foreign body which has gained entrance to the external orifice, the fistulous tract may be laid open and the lining epithelium curetted away.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Jan. 7. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 7. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DELAWARE: Wilmington, Dec. 10-12. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA (E): Jacksonville, Dec. 16-17. Sec., Dr. G. A. Munch, 1806 Franklin St., Tampa.

FLORIDA (R.): Miami, Dec. 2-3. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

HAWAII: Honolulu, Jan. 6. Sec., Dr. J. R. Judd, Honolulu.

ILLINOIS: Chicago, Dec. 9-11. Mr. F. C. Dodds, Supt. of Registration, Springfield.

IOWA: Des Moines, Dec. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

LOUISIANA: New Orleans, Dec. 2-4. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

MARYLAND: Baltimore, Dec. 10. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MINNESOTA: Minneapolis, Jan. 7-10. Sec., Dr. Thomas McDavitt, 741 Lowry Bldg., St. Paul.

NORTH DAKOTA: Jan. 7. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OHIO: Columbus, Dec. 3-5. Sec., Dr. H. M. Platter, State House, Columbus.

OKLAHOMA: Oklahoma City, Jan. 7-8. Sec., Dr. J. J. Williams, Weatherford.

PENNSYLVANIA: Philadelphia, Jan. 7-9. Sec., Mr. Nathan C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, Jan. 2-3. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

UTAH: Salt Lake City, Jan. 6. Corres. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

VIRGINIA: Richmond, Dec. 10-13. Sec., Dr. J. W. Preston, 215 S. Jefferson St., Roanoke.

WASHINGTON: Spokane, Jan. 7. Sec., Dr. C. N. Suttner, 415 Old Nat'l Bk. Bldg., Spokane.

Maryland Homeopathic Report

Dr. O. N. Duvall, secretary of the Maryland Homeopathic Board of Medical Examiners, reports that on Jan. 3, 1918, a graduate of the Hahnemann Medical College and Hospital of Philadelphia in 1917 was examined and passed, on July 6, 1918, two 1918 graduates from the same school were examined and passed, and on March 18, 1918, a graduate of the Detroit Homeopathic College in 1901 was licensed through reciprocity with Michigan.

Rhode Island October Examination

Dr. B. U. Richards, secretary of the Rhode Island State Board of Health, reports the practical and written examination held at Providence, Oct. 3-4, 1918. The examination covered 7 subjects and included 70 questions. An average of 80 per cent. was required to pass. Of the 5 candidates examined, 4 passed and 1 failed. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery	(1916)	87.5
Harvard University	(1915)	83.6
Tufts College Medical School	(1917)	85.8
University of Vermont	(1918)	93.5
FAILED		
College of Physicians and Surgeons, Boston	(1910)	78.4

Texas Reciprocity Report

Dr. M. F. Bettencourt, secretary of the Texas State Board of Medical Examiners, reports that 43 candidates, including 6 osteopaths, were licensed through reciprocity since Jan. 1, 1918. Fourteen candidates, including 2 osteopaths, were granted verification licenses. The following colleges were represented:

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Arkansas	(1915)	Arkansas
George Washington University	(1913)	Dist. Columbia
Atlanta College of Physicians and Surgeons	(1902)	Oklahoma
Chicago College of Medicine and Surgery (1916, 2)	(1917)	Illinois
College of Physicians and Surgeons, Chicago	(1893)	Oklahoma
	(1907)	Illinois
Hospital College of Medicine	(1907)	Kentucky
Tulane University	(1908)	Arkansas
University of Maryland	(1893)	Kansas
University of Minnesota College of Phys. and Surg.	(1912)	Minnesota
American Medical College	(1912)	Missouri
Beaumont Hospital Medical College	(1901)	Oklahoma
Kansas City College of Medicine and Surgery	(1917)	Connecticut
Kansas City Hahnemann Medical College	(1908)	Oklahoma
Kansas City Medical College	(1899)	Missouri
Missouri Medical College	(1898)	Oklahoma
National University of Arts and Sciences	(1917)	Missouri
University Medical College of Kansas City	(1898)	Kansas
Eclectic Medical Institute	(1869)	Kansas
Meharry Medical College	(1914) (1917)	Tennessee
Memphis Hospital Medical College	(1898) (1902)	Mississippi
	(1901) (1912,2)	Arkansas
Sewanee Medical College	(1907)	Oklahoma
Vanderbilt University	(1913) Kentucky; (1917)	Tennessee
University of Tennessee	(1889) Kentucky; (1893)	Arkansas
	(1914) Oklahoma; (1916)	Mississippi
University of West Tennessee	(1917)	Tennessee
Baylor University	(1916)	Oklahoma

Book Notices

SURGICAL AND WAR NURSING. By A. H. Barkley, M.D., M.C., F.A.C.S., Lecturer at Good Samaritan Hospital Training School for Nurses. Cloth. Price, $1.75. Pp. 208, with 79 illustrations. St. Louis: C. V. Mosby Company, 1918.

A TEXTBOOK OF PHYSIOLOGY FOR NURSES. By William Gay Christian, M.D., Professor of Anatomy, Medical College of Virginia, and Charles C. Haskell, M.A., M.D., Professor of Physiology and Pharmacology, Medical College of Virginia. Cloth. Price, $1.75. Pp. 168, with illustrations. St. Louis: C. V. Mosby Company, 1918.

NURSING IN DISEASES OF CHILDREN. By Carl G. Leo-Wolf, M.D., Chief of Clinic for Sick Babies and Children for the Health Department of the City of Buffalo, N. Y. Cloth. Price, $2.50. Pp. 314, with 72 illustrations. St. Louis: C. V. Mosby Company, 1918.

HYGIENE FOR NURSES. By Nolie Mumey, M.D., Lecturer in Hygiene, Chemistry, and Bacteriology, Logan H. Roots Memorial (City Hospital) Training School. Cloth. Price, $1.25. Pp. 160, with 75 illustrations. St. Louis: C. V. Mosby Company, 1918.

ESSENTIALS OF DIETETICS. A Textbook for Nurses. By Maude A. Perry, B.S. Cloth. Price, $1.25. Pp. 159. St. Louis: C. V. Mosby Company, 1918.

These books for nurses have been issued by the publisher in a uniform size and binding.

Dr. Barkley's experience in war nursing is based on service in the Spanish-American War and intimate acquaintance with eminent surgeons recently returned from the European battlefields. All of the illustrations of instruments were lent by a manufacturing house in Cincinnati. This book cannot be said to be an exceptional work.

Christian-Haskell's book on physiology is exceedingly brief, and at that probably not so brief as most nurses would have it. The chapter on the nervous system is quite technical. The others are good.

Leo-Wolf's book is very practical, quite complete and written in simple, direct language. After each chapter is a series of questions for review.

Mumey's book gives the merest outline of hygiene for nurses, and is extremely superficial.

Perry's is a solid work, giving the essentials of dietetics for nurses and following in many respects the book by Strouse and Perry on food for the sick. This book will be of distinct help to nurses.

DISEASES OF THE MALE URETHRA, INCLUDING IMPOTENCE AND STERILITY. By Irvin S. Koll, B.S., M.D., F.A.C.S., Professor of Genito-Urinary Diseases, Post-Graduate Medical School and Hospital. Cloth. Price, $3 net. Pp. 151, with 123 illustrations. Philadelphia: W. B. Saunders Company, 1918.

After a short recapitulation of the anatomy of the male urethra and its appendages, the author gives a brief abstract of the history of gonorrhea. This is followed by a summary of the modern views on the bacteriology and pathology of gonorrheal urethritis. These chapters while a trifle too concise, contain all the leading points. In his presentation of the treatment of gonorrhea the author forestalls the opposition that most of his confrères probably will offer to some of his therapeutic suggestions by emphasizing that they represent his personal views derived from his individual experience. The notes on the endoscopic findings are the result of careful work, and are accompanied by excellent colored pictures. This cannot be said about the description and illustrations concerning the operations undertaken for the relief of the complications and pathologic sequelae of gonorrheal urethritis. The closing chapters deal along the usual lines with sexual impotence and sterility in the male.

Medicolegal

Jurisdiction Over Recruits Afflicted with Disease

(In re Traina (U. S.), 248 Fed. R. 1004)

The United States District Court, Eastern District of New York, in denying an application for a writ of habeas corpus, says that relator Traina applied for the writ, directed to the commanding officer at Camp Upton, who, it was said, held the relator without authority, in that the relator claimed to be afflicted with a disease which he alleged made necessary his discharge from further Army service. He based the application for habeas corpus, in the first place, on the provisions of the selective service act and the rules promulgated thereunder, which direct rejection and discharge from military service of men with diseases and organic troubles which he claimed were less severe than those from which he suffered. But it must be held that this court has no jurisdiction either to consider the physical or medical standards by which persons otherwise eligible are to be judged either for admission to or discharge from the National Army. Such matters are clearly within the jurisdiction of the local and district boards or the Army authorities themselves.

The relator also claimed that the general provisions of Section 1116 of the Revised Statutes of the United States, requiring recruits to be "effective and able-bodied," made it illegal to retain a man suffering from such physical disability in the military forces of the United States, and that this court had power, on a writ of habeas corpus, to enforce the discharge of any one so afflicted. But no authority was cited from which it could be inferred that the court had such general power over the military forces of the United States. Any determination that a person should no longer be retained in the Army must be sought at the hands of the Army itself, even if it be evident that refusal to discharge would be illegal (Section 1342, as amended by Act of Aug. 29, 1916).

More than this, if the decision by the military authorities is adverse to the applicant, the court has no jurisdiction, if that decision is within the jurisdiction of the military authorities to determine. It has always been held, and is believed to be the law, that all such jurisdiction is vested in the military authorities, and that they have complete control and discipline over a man until they see fit to discharge him, if he has been lawfully brought into the service, and if the military authorities have not gone outside of the jurisdiction given them by statute, in administering the affairs of their own commands.

Requiring Drafted Person to Submit to Operation

(De Genaro v. Johnson (U. S.), 249 Fed. R. 504)

The United States District Court, Eastern District of New York, says that relator De Genaro, who applied for a writ of habeas corpus, was in the National Army at Camp Upton. He claimed to be suffering from hernia, and raised the contention that both the local board and the examining officers of the Army at Camp Upton were aware of this physical disability, even though the examination by the medical examiners of the local board, and the further examination at Camp Upton, did not result in his rejection for physical disability. In general, the case was like that of Traina, 248 Fed. R. 1004, in which it was held that the selective service law and sections 1116 and 1342 of the Revised Statutes of the United States make the decision of the examining board final so far as an application to the court by way of habeas corpus is concerned. But relator De Genaro raised a further point, as to which no decision seems to have been rendered. He alleged that the physical examination at Camp Upton resulted in his being ordered to undergo an operation to relieve him from the hernia complained of. He refused, and still refused, to submit to this operation, and in consequence of this refusal applied to this court for release through a writ of habeas corpus, alleging that the Army had no authority to hold him, inasmuch as they could not compel him to submit to the operation, and as he was therefore within the class of persons who are entitled, on physical examination, to be discharged from further military service.

It is evident that the unwillingness of the relator to submit to an operation could be used by a person so disposed as an excuse for further escaping military service, even though he might be willing and anxious to have the operation performed under ordinary circumstances. In any such case the court should not act directly in contravention of the provisions of the selective draft law, by which the findings of the boards and their examiners are final on such questions. The ordinary provisions of the military law then apply, and must be construed in connection with the laws under which the National Army has been created; but if a person were admittedly found to be physically disabled, by an examining board of the Army, and if the Army authorities should refuse to discharge him, for purely arbitrary or disciplinary reasons, the courts have no authority to take testimony, examine into the man's physical condition, on a hearing, and discharge him as held without authority of law, even if the facts appeared as he alleged. The writ must be dismissed, and the relator remanded.

Unconstitutional Laws Providing for Sterilization

(In re Thomson et al. (N. Y.), 169 N. Y. Supp. 638. Haynes v. Lapeer Circuit Judge (Mich.), 166 N. W. R. 938)

The Supreme Court of New York, Special Term, Albany County, in re *Thomson and others,* composing the board of examiners of feebleminded criminals and other defectives, reverses the board on its determination to perform vasectomy on one Frank Osborn, an inmate of the Rome Custodial Asylum, 22 years of age, strong physically, who had been an inmate of that institution for several years, and who was in the class known as feebleminded, and the court grants him an injunction restraining the carrying out of the determination of the board, because the court holds that Chapter 445 of the Laws of New York of 1912, amending the Public Health Law by adding Article 19 thereto, in relation to operations for the prevention of procreation, is unconstitutional. The court says, among other things, Can it be said that the law can direct the physical mutilation of the bodies of those who are in the state's care, and not be concerned with the same class of persons who are in the world at large? It seems clear that Frank Osborn is not given the equal protection of the laws, having in mind many others situated as he is who are not within the walls of a public institution, to which equal protection he is entitled with them. There is afforded to the young man similarly situated as to his physical and mental make-up, who is cared for by his parents in his own home, whose sexual tendencies and capacity may be the same as Osborn's, the protection of the law, which makes it a misdemeanor for any person to assist or take part in the operation of vasectomy on such a subject, while Frank Osborn, because he is an inmate of a state hospital, is not only not protected, but he is subject to such operation without his consent when determination is reached by the board created under this statute. The state has power, many times sustained by the courts, to protect the health, morals and welfare of the people, but such protection cannot be afforded unless it applies to all alike.

The Supreme Court of Michigan, in the case of *Haynes,* Superintendent of Michigan Home and Training School, v. *Lapeer Circuit Judge,* denies the plaintiff a writ of mandamus to review and reverse an order of the circuit court sustaining an order of the probate judge, refusing to entertain jurisdiction on the plaintiff's petition for a hearing to determine the question of the sanity of an alleged incompetent named Nora Reynolds, confined in the Michigan Home and Training School at Lapeer, and the necessity of performing on her the operation of salpingectomy, under the provisions of Act. 34 of the Public Acts of 1913, on the ground that the act is unconstitutional. The court says that the only question argued or raised in this proceeding against the validity of the law being that it was capricious and discriminating class legislation, there was no occasion to dwell or pass on any suggested underlying medicolegal questions to which the indicated purpose of the law points and which within con-

stitutional limits are for legislative rather than judicial consideration. The court is constrained to concur in the opinion of the circuit judge that this law as framed does not afford, in its scope, those affected by it that equal protection under the laws guaranteed by the constitution, and so limits the class of defectives covered by its provisions as to be clearly class legislation without substantial distinction within constitutional inhibition. What logical connection with the object sought by this enactment has a classification which carves a class out of a class and applies the proposed curative treatment, which it is found the public weal demands and justifies, only to those of the type requiring such exclusive legislation who, by reason of their sequestration under public control, are presumably helpless to work on those now in being or posterity the mischief which the law is framed to eliminate? In this enactment the legislature selected out of what might be termed a natural class of defective and incompetent persons only those already under public restraint, leaving immune from its operation all others of like kind to whom the reason for the legislative remedy is normally and equally, at least, applicable, extending immunities and privileges to the latter which are denied to the former.

Period Employer Must Furnish Medical Services

(In re McKenna (Maine), 103 Atl. R. 69)

The Supreme Judicial Court of Maine holds that in a case in which a claimant under the workmen's compensation act received her injury on September 11, and the industrial accident commission found that "disability" began on September 18, the commission erred in holding that the date of the accident would be considered as of September 18, and ordering that medical bills, not exceeding $30, covering the fourteen days following September 18, be paid by the employer. The court says that the plain language of the statute restricts the period during which the employer must furnish medical services, etc., to the first two weeks "after the injury," and, while the act is remedial and to be broadly construed, the court finds no authority for the substitution for the word used in the statute of another term used in the same statute with a clearly different meaning. If it is desirable to change the period during which medical services shall be furnished, or to extend the powers of the commission in that regard, legislative action should be had, as was done in Massachusetts. Nor does the court consider that such a rule as that adopted by the commission is necessary to carry out the legislative intent. Its evident purpose was to allow no compensation in the nature of wages for the first two weeks after the injury, at least when the incapacity is partial, and during those two weeks to allow as compensation to the injured employee his medical expenses, to the end that the latter might not for reason of economy delay seeking medical advice, even though the injury might be slight and not immediately incapacitating.

Competent to Give Opinion on Mental Condition

(Monahan et al. v. Roderick et al. (Iowa), 166 N. W. R. 625)

The Supreme Court of Iowa holds that the fact that it appeared in a contest over a will that the physician who had attended the testatrix was not a specialist in mental diseases would not necessarily destroy his expert character, and did not disqualify him from expressing his opinion on the mental condition of the testatrix. The court says that the boundaries of the field of expert knowledge are somewhat indefinite. There are varying degrees also of expert knowledge on any subject. A regular practicing physician is usually regarded as expert, at least to some extent and for some purposes. The court sees no reason to say that he is not qualified as such to give an opinion as to the feebleminded condition of the patient under his care. It was unimportant that the question in this case asked the opinion of the witness whether the mind of the testatrix was sound, and did not ask whether it was unsound, although the trial court seemed to think that the first form of question was proper while it would not have been proper to ask the witness for an opinion whether the mind of the testatrix was unsound.

Society Proceedings

COMING MEETINGS

American Assn. for S. & P. of Inf. Mort., Chicago, Dec. 5-7.
American Physiological Society, Baltimore, Dec. 30-Jan. 1.
American Public Health Association, Chicago, Dec. 9-12.
Medical Association of Porto Rico, Ponce, Dec. 14-15.
Society of American Bacteriologists, Boston, Dec. 30-Jan. 1.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Eighth Annual Session, held at Philadelphia, Sept. 23-26, 1918

(Continued from page 1691)

Absence of Clinical Symptoms During Preperforated Stage of Duodenal Ulcers

DR. LEVI J. HAMMOND, Philadelphia: Of fourteen patients operated on during the past two years at the Methodist Episcopal Hospital for perforated duodenal ulcers, not even the frequent complaint of digestive disorder is noted in the histories as occurring during their latent period. In none of them was complaint made of such symptoms as paroxysmal pain, localized tenderness, vomiting, hematemesis, or hyperacidity of the gastric juices. None of the patients were chlorotic or anemic and there was no history of burns or scalds or other serious accidents that could have been a factor in etiology. In most instances the perforations occurred while the patients were at their usual occupations. In one, perforation occurred during the middle of the night while the man was asleep in his bed.

DISCUSSION

DR. M. BEHREND, Philadelphia: It is my experience that many cases of perforation give no symptoms. These cases usually occur in men. They are working and are suddenly seized with terrific pain that overcomes them and the perforation has occurred. On close questioning of these patients a history of gastric disturbance, commonly called "indigestion," is usually received.

DR. JOHN J. GILBRIDE, Philadelphia: It is not uncommon to have cases of perforation without any preperforative symptoms. Vomiting and hemoptysis are rare in duodenal ulcer. About the only symptom one could tie to would be pain. Hyperacidity is not at all diagnostic. Finding occult blood in the stool may be of value .

DR. DONALD GUTHRIE, Sayre, Pa.: I have endeavored to find out whether there is any change in the symptoms during which the perforation occurred and the symptoms that all the patients complain of, but even by asking the most direct leading questions it is impossible to elicit any early ulcer history.

Postoperative Sequelae of Acute Appendicitis

DR. JOHN B. DEAVER, Philadelphia: In 1,700 operations for acute appendicitis there were sixty-six deaths, a mortality of 3.7 per cent. The series included all cases of acute appendicitis with and without preoperative complications directly due to the condition of the appendix or to the involvement of other viscera. Of the complications, fecal fistula occurred in forty-two cases, secondary abscess in thirty and intestinal obstruction in twenty-seven cases. An analysis of the cases of obstruction shows that fully 70 per cent. required drainage at the original operation. There is no doubt that in every case of acute appendicitis requiring drainage operation was delayed beyond the most favorable moment. In the prevention of surgical complications there is nothing more important than to forestall the formation of pus within the peritoneal cavity. A large number of these cases would not have developed adhesions and consequent obstruction if the original appendicular disease had been treated early and no drainage had been required.

DISCUSSION

DR. H. J. DONALDSON, Williamsport: To the post operative sequelae mentioned I wish to add acute renal insuf-

ficiency, acute gastric dilatation, and hemorrhage from erosion of drainage tubes. Of the fecal fistula group my experience leads me to believe that the causes are gangrene of the base of the appendix involving some area of the cecum, failure to remove the appendix, erosion of the intestines by the drain and ulcer of cecum due to thrombosis of the blood supply, or extension of gangrenous process. To overcome this occurrence, it has been my habit always to remove the appendix, to free the adhesions to admit of invagination of the cecal wall if gangrenous, and to effect an early change in the position of my drainage to prevent pressure on the bowel or large blood vessels and other important structures. One of the greatest lessons I ever had in drainage tube accidents was the sudden death of a man rapidly recovering from a general peritonitis, who on the seventh day developed a hemorrhage from his iliac artery and died in a few minutes.

Wounds of the Joints, with Especial Reference to Splintage

Lieut.-Col. Robert B. Osgood, M. C., U. S. Army, Boston: in any serious engagement, we may expect nearly one half of the severe injuries to involve the bones and joints and among these, the phenomenon of shock is very common. Shock is of first concern and infection is a close second. Perhaps the most common cause of shock is trauma. Infection feeds first on traumatized tissue. Transport must always add trauma to trauma already existing. It becomes the first duty of the surgeon to lessen this trauma by every possible means. Proper splinting materially lessens it. Therefore, proper splinting becomes of first concern. The first essential in good splinting for transport is the comfort of the wounded man. If the splint gives him ease from his wound pain and does not add another discomfort, the first requisite is met. The splints must also fulfil the mechanical purposes for which they are applied. The design of the splints must be simple and their weight light, in order that they may be manufactured in large quantities and be transported easily far up the line to the battalion aid posts. For fractures of the long bones and certain joint injuries it is extremely desirable that they embody the two principles of fixation and traction: Fixation, to protect the injured structures and to retain proper alinement after the alinement has been secured; traction, to bring about muscular relaxation with the object of diminishing pain by inhibiting involuntary contraction, which also results in malposition.

DISCUSSION

Capt. Roades Fayerweather, M. C., U. S. Army, Washington, D. C.: The importance of splinting cannot be emphasized too much. It is the first form of specialized treatment that the soldier with a bad fracture receives, and frequently very soon, if not immediately, after his injury. This treatment must frequently be applied by men who have had no experience in medical or surgical work, that is by the corps men, therefore, these methods should be simple and capable of routine application. Every surgeon in the expeditionary force must be his own orthopedic surgeon. It is impossible for the orthopedic surgeon to be in attendance on all these cases; hence the surgeon handling these cases must look on them with an orthopedic eye. He must look to the functional result; he must learn to use these splints and he can do so very easily because of their simplicity.

Lieut.-Col. Robert B. Osgood, Boston: In the aftermath of cases coming through England, 30 to 50 per cent. of the cases of deformity filling the military hospitals represents the preventable deformities.

Combating Septicemia with Arsphenamin

Dr. Samuel R. Haythorn, Pittsburgh: Arsphenamin was administered in twenty-nine cases of proved septicemia with seventeen recoveries and twelve deaths. The treatment proved beneficial when used early in septicemias if they were associated with primary foci which were easily accessible to surgical interference. In endocarditis and other conditions in which secondary localizations had become firmly established, arsphenamin was disappointing because it did not affect the localized lesions on the heart valve but appeared to be effective only in the blood stream.

DISCUSSION

Dr. Harold A. Miller, Pittsburgh: We have used arsphenamin in fourteen cases. In none did we get any untoward symptoms which we could attribute to the arsphenamin. We have found no contraindications in puerperal sepsis for the use of arsphenamin that are not also contraindications in syphilis or other diseases. In every instance but one in which we gave the arsphenamin we were able to demonstrate a negative blood culture. The patient was a woman with a vegetative endocarditis. In every instance in which the remedy was given before there was a localized area of infection there was a temperature drop in the way of crisis within twenty-four hours. A daily leukocyte count was taken to determine the indication for repeating the dose. In the very virulent cases the leukocyte count was very low in comparison with the illness of the patient. Following the administration, the leukocyte count would increase to 32,000 within from twenty-four to forty-eight hours. In our series one patient died of streptococcic pneumonia, one of multiple abscess of the kidney and one of peritonitis. In our ultimate results we found no untoward effects.

Dr. Grover C. Weil, Pittsburgh: In a case of staphylococcic septicemia resulting from a compound fracture following considerable traumatism of the wounded surface with fluctuation of temperature between normal and 101 F. for five weeks, the temperature was normal in five days following the administration of arsphenamin and five days later the staphylococci had disappeared from the blood. The man subsequently regained his weight, and in three weeks following the first administration of the arsphenamin there was almost complete union of bone.

Dr. S. R. Haythorn, Pittsburgh: Following the administration of arsphenamin, an increase in the number of leukocytes was a constant finding. The importance of repeated blood cultures should be emphasized, particularly in the presence of persistent fluctuating temperature. The results in the treatment of endocarditis were discouraging, but Zinsser observes that endocarditis is a secondary infection of the heart valves, and that the vegetations on them act as localizations, from which bacteria may be poured into the blood stream continually. While not arguing that arsphenamin is an ideal drug for the treatment of septicemia, we hope by its careful use to reduce the mortality in blood stream infections.

Physical Examination in the Diagnosis of Early Pulmonary Tuberculosis

Dr. Louis V. Hamman, Baltimore: When 100 men come before us for examination, we know that at least seventy have pulmonary tuberculosis. Of the seventy with signs of pulmonary change, only four or five will develop the disease. Nothing can be more important than to distinguish between tuberculous infection and tuberculous disease. It is impossible to put an absolute value on the physical examination in the diagnosis of pulmonary tuberculosis. It really takes its value from the relations of all the other associated clinical facts. One exception to this statement is in favor of râles. When definite moist râles are limited to an apex this is an almost absolute indication of pulmonary tuberculosis, provided the general evidence points to the presence of the disease. This conclusion may be drawn safely even though at the time of examination the usual symptoms of tuberculous disease are absent. In this important emphasis I mean definite unmistakable fine moist sounds heard at an apex, and not the many adventitious sounds which so frequently puzzle the adept and mislead the novice. So far as tuberculosis is concerned in the war problem, not only the obviously tuberculous should be excluded from active service, but those likely to develop the disease from exposure incident to camp life.

DISCUSSION

Dr. Elmer H. Funk, Philadelphia: Physical signs are valuable only as emphasized by the consideration of history and symptoms. Far more important is the determination whether the disease is clinically active or clinically inactive. We must learn what from the roentgen ray point of view constitutes a normal chest.

Dr. Charles H. Miner, Wilkes-Barre: The most important question is the relation between the extent of the pul-

monary changes not due to active disease and the probability of developing active disease under conditions of unusual exposure. Nearly 3 per cent. of 5,945 measles patients have developed tuberculosis. There are many occupations with less exposure and in which the risks to a tuberculous individual are much less than in the trenches.

DR. THOMAS MCCRAE, Philadelphia: The view expressed by some that the man in the Army is not much exposed to infection is of doubtful accuracy. Regarding pensions, if the Army accepts a man who later is found to have tuberculosis, it seems reasonable that he should be pensioned by the government. I would put as the first consideration of useful points in diagnosis the fact that suspicion is aroused. It is then our business to exclude the possibility, rather than to take the view, for example, that the condition is nothing but bronchitis.

Essential Hypertension

DR. HERMAN O. MOSENTHAL, Baltimore: It is important to recognize this disease, which thus far is characterized by the presence of only one symptom, namely, hypertension. There is no pathologic physiology of the organism of which we are aware that brings about hypertension. It exists in a great number of individuals and usually results in severe lesions of the heart, brain or kidney which cause death. The diagnosis can be made with certainty only when the tests for renal function are available. Treatment involves some of the most intricate questions in metabolism. The effective treatment is prophylaxis. Mental and physical rest seem to constitute the main element in the successful treatment. A diet regulating quantity rather than quality that the heart efficiency may not be interfered with by the distended stomach and that obesity may be forestalled or diminished, accomplishes as great results as are possible through food control. Attention to hygienic instructions may often prolong life to a considerable degree.

DISCUSSION

DR. JAMES M. ANDERS, Philadelphia: Essential hypertension is of great importance because these cases usually terminate in serious cerebral, arterial, cardiac and renal developments. That very fact should make us reserved in classifying the condition as a separate disease entity. The condition, in my experience, is by no means as frequent as certain writers would have us believe. Clinicians have failed to exclude cases in which some cause of hypertension could have been found with sufficiently thorough investigation. We are not justified in making a diagnosis without resort to the tests for renal function. Such tests have revealed insidious developments in the kidney structure, showing that cases of apparent essential hypertension could not be regarded as such. Many of the cases of persistent hypertension in middle aged men in active business given to the pleasures of the table and to excesses in alcohol and tobacco, in my experience, yield to treatment, prolonged rest and correction of the habits of the patient, and should not be classified as belonging to this clinical group of true essential hypertension.

DR. ROSS V. PATTERSON, Philadelphia: An important group of cases of hypertension must be distinguished from the much more common forms due to renal sclerosis, a condition in which the hypertension is the primary change, and in which the changes in arteries and slight changes in kidneys are secondary but with decrease of hypertrophy of the heart. The difference in clinical course is important; also the difference in management, prognosis and treatment. When sclerosis of the kidney is a primary factor renal functional tests are essential to diagnosis of hypertension.

DR. FRANCIS ASHLEY FAUGHT, Philadelphia: It is my firm opinion that the renal function test has very little value; it does not differentiate between a temporary congestion of the kidney and chronic kidney disease, and is, therefore, absolutely useless in the study of a condition of this kind which is the borderline between health and disease. Cases of essential arteriohypertension exist and probably have a cause, which is toxic. If such cases do not exist too long as temporary conditions, they are amenable to relief and cure.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health

October, 1918, **8**, No. 10

1 *Convalescent Human Serum Treatment of Influenza Pneumonia. L. W. McGuire and W. R. Redden.—p. 741.
2 Centralized Health and Relief Agencies in Influenza Epidemic. E. R. Kelley and B. W. Carey, Boston.—p. 744.
3 *Open Air Treatment of Influenza. W. A. Brooks.—p. 746.
4 Epidemiology and Bacteriology of Influenza. C. A. Darling, Meadville, Pa.—p. 751.
5 *Use of Influenza Vaccine in Present Epidemic. T. Leary, Boston.—p. 754.
6 Modern Advertising and Nostrum Evil. A. J. Cramp, Chicago.—p. 756.
7 Effect of Putrefactive Odors on Growth and on Resistance to Disease. C. E. A. Winslow and D. Greenberg, New Haven.—p. 759.
8 Suggested Modifications of Standard Method for Study of Dust Content of Air. H. F. Smyth, Philadelphia.—p. 769.
9 Chlorination of Chicago's Water Supply. J. Ericson, Chicago.—p. 772.
10 Birth Registration in Connecticut. J. P. Balfe, Hartford.—p. 776.

1. Convalescent Human Serum Treatment of Influenzal Pneumonia.—The observation and treatment by McGuire and Redden of over 400 cases of influenzal pneumonia in the Chelsea Naval Hospital has afforded opportunity to compare various methods of treatment with a fair degree of accuracy. The use of serum from convalescent influenzal pneumonia patients was first tried on two patients with a very severe and extensive bronchopneumonia. The result was very encouraging and led to its further use. Thirty-seven patients have been treated with serum. Thirty are convalescent; six are under treatment; one dead. Of the six under treatment, two are much improved; two have received only one injection of serum; two not improved, one of whom is critically ill. Of the thirty convalescents, eight received treatment on the second day of the pneumonia; fifteen on the third day; four on the fourth day; three on the sixth day. Of the six under treatment, three received serum on the second day; two on the third day, and one on the fourth day. The patient who died received the first serum on the fifth day. Convalescent patients were bled as soon as convalescence was well established, the majority within a week or ten days of a drop to normal temperature. The serum was given as early as the diagnosis of the pneumonia complication could be made, so there has been no doubt about the lung involvement.

The dose of serum has varied from 75 to 125 c.c. intravenously and the interval between doses has varied from eight to sixteen hours. Treatment was continued until there was no doubt about the recovery of the patient. The majority of patients received about 300 c.c. Three received only 100 c.c. and two received from 600 to 700 c.c. It was found that there was a marked difference in the potency of the convalescent serum. At least ten out of seventy serums had no effect on patients. Under these conditions the succeeding doses of serum were from other patients. Results from this serum are usually obtained in the first twenty-four hours after its use. If no results are obtained in this time, the serum from another donor should be used. An attempt was made to judge the potency of the serum by the amount of lung involvement.

Wassermann tests were made on all donors as soon as possible in order not to waste time on bleeding those who showed a positive reaction. Compatibility tests of donors' serum, with recipients' corpuscles, was made as soon as new cases appeared on the ward. Then usually ten to fifteen serums were tested against the corpuscles of each recipient in order to have plenty of available serum for complete treatment. Blood to the amount of about 800 c.c. was taken from each donor, under sterile precautions; 400 c.c. at a time on two successive days. Thus each donor yielded about 300 c.c. of serum. The blood was allowed to clot at room temperature for about an hour, then plate cultures were made, and the containers placed on ice over night. The separated serum was cleared by centrifugalizing at high speed; then bottled,

and in most cases given the same day. Tricresol (0.30 per cent.) was used only in serum kept over twenty-four hours. Only four patients had chills after the serum injections. All of these received serum containing tricresol, while three others receiving tricresolized serum gave no such reaction. At no time has a donor been inconvenienced by the withdrawal of the above amount of blood. Experience shows that the most beneficial results will be obtained by giving the proper serum within the first forty-eight hours of the pneumonia complication. The authors are convinced that the serum from convalescent influenza pneumonia patients has a decided influence in shortening the course of the disease and in lowering the mortality.

3. **Open Air Treatment of Influenza.**—Brooks calls attention to the fact that there is apparently great opposition to open air treatment among many of the medical fraternity. Many seem inclined to think that if the windows of a room are open the same object is attained. Many think that the ordinary sun parlor of a hospital is "just as good." The facts are, however, that the patients do not thrive as well in any ordinary hospital, no matter how well it is ventilated, as they do when they are put right out into the open. The objection to the sun parlor is that one gets direct sunlight only during part of the day, whereas the patient who is out in the open gets the direct sunlight all day long. Brooks reports his experience in the treatment of influenza in tents. The efficacy of open air treatment has been proved, Brooks says, and one has only to try it to discover its value. His paper represents the result of study by twelve or fourteen men, who, for a month, practically devoted their entire time to the treatment of influenza and its complications.

5. **Use of Influenza Vaccine in Present Epidemic.**—Three strains of influenza bacilli obtained from cases during the present epidemic have been used by Leary in the manufacture of vaccine. The prophylactic dose has been 0.5 c.c., 1 c.c. and 1.5 c.c. in three doses at twenty-four hour intervals. The therapeutic dosage has been 0.5 c.c. every twelve hours. Leary suggests that it is probable that all of these doses are too small, notably the therapeutic dose. The percentage of complete protection appears to be high, and there is marked amelioration of symptoms in those who become ill, and pneumonias appear in very few cases. The therapeutic use of vaccines was followed by the best results when large doses were exhibited early in the disease. Leary thinks it should be possible to abort a large percentage of the cases, and prevent the development of pneumonia. After pneumonia has developed, large doses of vaccine have produced excellent results.

Boston Medical and Surgical Journal

Oct. 31, 1918, **179**, No. 18

11 *Fatigue as Contributory Cause of Pneumonia. W. N. Cowles, Boston.—p. 555.
12 Two Infections Caused by Single Carrier. D. M. Lewis, New Haven, Conn.—p. 556.
13 Radium Therapy in Hyperthyroidism with Observations on Endocrinous System. W. H. B. Aikins, Toronto.—p. 558.

11. **Fatigue as Contributory Cause of Pneumonia.**—This investigation was made at the Groton School for Boys at Groton, Mass. The kind of fatigue observed as a cause of pneumonia at this school, Cowles says, is an acute fatigue, due to violent exercise like rowing or running in competitive sports and not mere weariness from everyday activities. The observed instances in which acute fatigue was followed by pneumonia were in boys already subject to, or convalescent from, mild respiratory infections and presumably easily tired. That acute fatigue was a contributing cause of pneumonia at Groton, seems more than suggested. Pneumonia was confined to boys given to athletic tasks and sports. Between 4 and 5 per cent. of them had it each year for three years. It came to an end when boys ailing or convalescent were shielded from fatigue. The persons associated with the boys in the school and the high school pupils, near by, limiting themselves to everyday activities, did not have pneumonia. Cowles points out that this investigation suggests the operation of the same contributing cause of pneumonia in army camps and elsewhere, and that the disease may be lessened by similar measures against fatigue in persons out of condition.

Georgia Medical Association Journal, Atlanta

September, 1918, **8**, No. 5

14 Plastic and Cosmetic Surgery. E. D. Highsmith, Atlanta.—p. 91.
15 Recent Developments in Laboratory Diagnosis. E. C. Thrash, Atlanta.—p. 94.
16 Prostatectomy in Two Stages. W. L. Champion, Atlanta.—p. 95.
17 Earache and Deafness. A. B. Mason, Waycross.—p. 99.
18 Cholecystitis Papillomatosa Malignum. T. P. Waring, Savannah. —p. 105.

Indiana State Medical Association Journal, Fort Wayne

October, 1918, **11**, No. 10

19 Indiana Physicians and the War. J. R. Eastman, Indianapolis. —p. 359.
20 Medical Profession in the War. F. Martin, Washington, D. C. —p. 361.
21 Surgeons of Civil War. G. W. H. Kemper, Muncie.—p. 367.
22 Indiana in the War. M. F. Foley, Indianapolis.—p. 369.

Journal of Experimental Medicine, Baltimore

November, 1918, **28**, No. 5

23 Acid Production Graphically Registered as Indicator of Vital Processes in Cultivation of Bacteria. A. Fischer, Copenhagen, Denmark.—p. 529.
24 *Experimental Chemical Pneumonia. M. Wollstein and S. J. Meltzer, New York.—p. 547.
25 Effect of Intrabronchial Insufflation of Solutions of Some Inorganic Salts. M. Wollstein and S. J. Meltzer, New York.—p. 551.
26 *Spirochetal Flora of Normal Female Genitalia. H. Noguchi and and D. J. Kaliski, New York.—p. 559.
27 Comparative Study of Experimental Prophylactic Inoculation against Leptospira Icterohemorrhagiae. H. Noguchi, New York. —p. 561.
28 *Specific Poison in Liver Extracts of Rabbits Inoculated with Typhoid and Prodigiosus Bacilli Intravenously. J. T. Parker, New York.—p. 571.
29 Improvement in Method of Isolating and Recovering Bacillus of Cattle Abortion Through Guinea-Pigs. E. W. Smillie, Princeton, N. J.—p. 585.
30 *New Thoracic Murmurs Heard with Two New Instruments, Refractoscope and Partial Stethoscope. F. D. Parker.—p. 607.
31 New Type of Syringe, Especially Adapted for Intravenous Injections or Aspiration of Blood. J. H. Brown, Princeton, N. J. —p. 623.
32 *Experimental Hemochromatosis. P. Rous and J. Oliver, New York. —p. 629.
33 *Urinary Siderosis. Hemosiderin Granules in Urine as Aid in Diagnosis of Pernicious Anemia, Hemochromatosis, Other Diseases Causing Siderosis of Kidney. P. Rous, New York.—p. 645.
34 Rapid Differential Method for Isolation of Bacillus Influenzae. J. H. Brown and M. L. Orcutt, Princeton, N. J.—p. 659.

24. **Experimental Chemical Pneumonia.**—Wollstein and Meltzer produced lobar pneumonia in dogs by means of intrabronchial insufflation of a broth culture of a highly virulent pneumococcus Type I, invariably leading to a fatal termination. The pneumococcus insufflated was recovered in pure culture from the solid lung area and the blood of the heart. The next step was to apply chloramin-T solution to the inoculated lung. The plan was to introduce 5 c.c. per kilo of body weight of a 1:10,000 solution intrabronchially two hours after the culture was given, and if the animal survived until the next day or longer, to repeat the injection. Six animals with the experimentally induced pneumonia were given the chloramin-T solution; they were controlled by three untreated dogs. One animal received four, another three, and two others two treatments, while two died after the first dose. Instead of a therapeutic action, the effects of the treatment were rather to intensify the pathologic process. Moreover, death resulted, as a rule, more quickly in the treated than in the control animals.

26. **Spirochetal Flora of Normal Female Genitalia.**—The results of examinations of the smegma, films, and washings of the genital mucous membranes of normal adult females demonstrated that the number of spirochetes of the female is much greater than that of the adult male, although the varieties present appear to be identical in both. As in the male smegma, *Treponema calligyrum* is encountered here also as the predominating variety in the majority of specimens, while *T. minutum* is present almost constantly but in fewer numbers. The coarse *Spironema refringens* has been found less frequently here than in male smegma.

28. **Specific Poison in Liver Extracts of Rabbits Inoculated with Typhoid and Prodigiosus Bacilli.**—The experiments described by Parker make it probable that part, at least, of the intoxication produced in rabbits by injections of *B.*

typhosus or *B. prodigiosus* is due to liver poisons of the nature of those dealt with here and which appear to be yielded to the blood by the liver, and then absorbed by the various tissues. Rabbits actively immune to *B. typhosus* or *B. prodigiosus* exhibit a condition of resistance apparently because of having acquired in the process of immunization a tolerance to the liver poison. For it is possible that even if several lethal doses of the bacteria are injected into the immune animal, not more than one lethal dose of the liver poison is produced in a unit of time, an amount which the immune animal can tolerate readily. Whether a similar poison is generated in typhoid in man is a question, Parker says, that cannot now be answered. It seems not impossible that it may play a part in causing the symptoms of toxemia in that disease.

30. **New Thoracic Murmurs Heard with Refractoscope and Partial Stethoscope.**—With these instruments the following facts have been determined by F. D. Parker. The sounds heard through the refractoscope and through the partial stethoscope are different in many respects from those heard in ordinary auscultation. There exist "sound shadows," and of these there are two varieties, respiratory sound shadows and cardiac sound shadows. Heart sounds appear to take on the characteristics of chamber sounds in a degree greater than has been realized; and dilated hearts with poor muscle respond to more harmonics than does muscle with better tonus. The so-called third heart sound, noted by many observers and discussed by both Barie and Thayer, does exist as a true heart sound. It is the sound produced during auricular systole and is heard best at the apex.

There is a cardiac sound which Parker calls the "outflow" sound. The heart is a tube with resonant walls. These walls are set in vibration: (1) while the heart is filling; (2) when the auricle contracts; (3) when the ventricle contracts, thus causing the valves to vibrate; (4) while the ventricle is being emptied; (5) when the semilunar valves close. The flow of blood into the heart is too gentle to cause vibrations sufficient to give rise to audible sound. The second or auricular vibration causes the sound of Barie and Thayer. The third sound is that now termed clinically the first sound. The fourth is Parker's outflow sound. The fifth is the so-called second sound. The outflow sound is heard between the first and second valve sounds of the heart. During this period the outflow sound does not appreciably vary in intensity, but it noticeably rises in pitch. When the ventricle shoots its considerable mass of blood into the great arteries, it is probable that the rushing flood would set the elastic walls in vibration. The outflow sound cannot be a continuation of the so-called first sound, because the intensity of the outflow sound does not perceptibly diminish. In all sounds emanating from the thorax the pleaurae are in a state of vibration. Some sounds produced in the more remote parts of the chest are brought to a focus in the apex of the lungs.

32. **Experimental Hemochromatosis.**—In rabbits destroying transfused blood constantly during a period of many months a pronounced and widespread siderosis ensues, practically identical with that characterizing human hemochromatosis. The findings do not indicate the ultimate cause of this disease, but they throw light on its various features and its course, and suggest a means for its diagnosis.

33. **Hemosiderin Granules in Urine as Aid in Diagnosis of Diseases Causing Siderosis of Kidney.**—In diseases which bring about a siderosis of the kidney, there are ordinarily present in the urinary sediment cells containing granules of hemosiderin, and often many free granules as well. The finding has proved useful in the diagnosis of hemochromatosis and Rous suggests that it will probably be of service in the recognition of pernicious anemia, and possibly some other diseases. The fact should be emphasized that urinary siderosis is the indication of a renal condition, not of a disease.

Journal of Infectious Diseases, Chicago

November, 1918, **23**, No. 5

35 Normal Agglutinins for Different Kinds of Pathogenic Bacteria in Serum of Cold Blooded Animals. M. Takenouchi, Chicago. —p. 393.

36 Cytolytic Action of Normal and Immune Serum on Infusoria. M. Takenouchi, Chicago.—p. 396.

37 Lysis and Agglutination of Red Corpuscles of Warm Blooded Animals by Normal Serum of Cold Blooded Animals. M. Takenouchi, Chicago.—p. 415.

38 *Use of Gold Salts in Treatment of Experimental Tuberculosis in Guinea-Pigs. L. M. DeWitt, Chicago—p. 426.

39 Focal Degeneration of Lumbar Cord in Case of Infantile Scurvy. A. F. Hess, New York.—p. 438.

40 *Relationship of Leukocyte Count and Bone Marrow Changes in Acute Lobar Pneumonia. S. S. Samuels and R. A. Lambert, New York.—p. 443.

41 *Case of Spirillosis. C. C. Hartman and G. R. Lacy, Pittsburgh. —p. 449.

42 *Liberation of Antibodies on Injection of Foreign Proteins. S. F. Herrmann. Minneapolis.—p. 457.

43 *Presence of Meningococcus in Blood. K. F. Maxcy.—p. 470.

44 *Acute Respiratory Diseases Among Troops with Especial Reference to Empyema. L. S. Beals, B. F. Zimmerman and S. B. Marlow, Camp Custer, Mich.—p. 475.

38. **Gold Salts in Treatment of Experimental Tuberculosis.**—From DeWitt's experiments the conclusion is drawn that the treatment of experimental tuberculosis in guinea-pigs with gold salts is not efficacious. No attempt has been made to use these salts in human patients. The tendency to hemorrhage and hyperemia in the gold treated animals and the marked shortening of life on account of the treatment suggest that the treatment of human tuberculous patients with gold is not without danger. Furthermore, the chemical analyses of the organs demonstrate that there is no specific affinity of gold for tuberculous tissues and that the gold in the tissues is probably fixed in the tissue cells in such a form that it cannot inhibit the growth of the tubercle bacillus nor the development of the tubercle even when its concentration in the tissues is much more than sufficient to cause complete inhibition in the test tubes.

40. **Leukocytes and Marrow in Pneumonia.**—Samuels and Lambert made their observations on seventeen cases of acute lobar pneumonia which came to necropsy. Only adults were included in the series, since in the earlier periods of life the bone marrow in the long bones is normally so active that degrees of hyperplasia cannot be easily recognized. A close parallelism in the leukocyte count and the degree of hyperplasia of the marrow was found in less than half of these cases. A few showed relatively inactive or aplastic marrows, with a leukocyte count well above normal. On the other hand, in several cases leukocyte count was persistently low during life, but a markedly hyperplastic marrow was found at necropsy. To explain an aplastic femur marrow associated with a leukocytosis during life there may exist either a hyperplasia of the marrow of the flat bones only—a very improbable condition—or a formation of leukocytes outside the marrow, most probably in the spleen. The presence of large numbers of cells of the myeloid series in the splenic pulp would favor the latter explanation. The cases of marked hyperplasia of the marrow with low leukocyte count are not easily interpreted. The authors could not find evidence in these cases of such rapid spread of the lesion as would account for a low leukocyte count through the draining of these cells out of the circulation.

41. **Case of Spirillosis.**—The occurrence, in a young Italian, of a recurrent fever characterized by acute exacerbations, accompanied by severe secondary anemia, general lymph node involvement, splenomegaly and varying lung symptoms, and the isolation from the blood both during life and at necropsy of a motile curved organism are the salient features of the case cited by Hartman and Lacy. The resemblance to typhoid during the earlier course of the disease was striking save that all of the laboratory tests were consistenly negative. The diagnosis of a generalized tuberculosis was not corroborated. The most unusual feature was the sudden enlargement of the lymph nodes with subsidence within a few days to a more nearly normal size. A study of the sections suggests that enlargement was due to a severe inflammation of the intranodal sinuses which healed by granulomatous changes leading to extensive connective tissue development. The progressive secondary anemia was extreme, and there were no evidences of blood regeneration found either in the blood examinations or in the sections of the marrow. The marrow was red but the sections showed the color to be due to necrosis and hemorrhage and not to hyperplasia. The hemosiderin in the liver and spleen as well as

the extreme phagocytosis of red cells in the latter showed that the anemia was due not only to the failure in production of red cells, but also to actual blood destruction in the tissues. The splenomegaly was probably secondary to the anemia. A few small foci of nodular connective tissue, slight edema and the pleural hemorrhages were all that were present at necropsy to explain the lung symptoms. Anatomic changes associated with the diarrhea and general toxic condition were seen in the stomach ulcers, the membrane in the colon and in the necroses of the liver. The main point of interest is, of course, the isolation both before and after death of an actively motile, spirally curved organism from the blood. The spirillum grew equally well aerobically and anaerobically.

42. **Liberation of Antibodies by Foreign Protein.**—In rabbits sensitized with streptococci Herrman found that a definite liberation of specific opsonins and agglutinins follows the injection of foreign protein. A similar rise in specific opsonins also occurs in rabbits sensitized with meningococci. Foreign protein injections have no effect on antibodies in typhoid immune rabbits. In suitable rabbits, which do not readily produce lysins against sheep corpuscles, the injection of foreign protein within ten days after the injection of antigen is followed by a marked liberation of specific lysins. A variety of foreign proteins can be used. Human serum, typhoid vaccine, human ascitic fluid, and guinea-pig serum proved equally efficacious.

43. **Meningococcus in the Blood.**—During the epidemic at Camp Beauregard in February, 1918, twenty-seven blood cultures done by Maxcy on patients suspected of being cases of abortive meningococcus infection were negative. A case of meningococcus infection is reported in which the blood stream invasion was transient and the organism quickly localized in the meninges where it yielded to the intraspinal injection of serum. A case of meningococcus septicemia with transient meningeal involvement is reported with recovery only after the injection of large amounts of antimeningococcus serum intravenously.

44. **Acute Respiratory Diseases and Empyema.**—In a group of 115 consecutive cases of pneumonia and empyema occurring at Camp Custer a definite history of an acute antecedent bronchitis, pharyngitis or tonsillitis was obtained in over 80 per cent. of the cases. In the majority of cases of empyema, a hemolytic streptococcus was the causative organism. During the period of prevalence of empyema, streptococci were demonstrable in the majority of the throats of healthy soldiers (including fresh recruits) as well as of patients entering the hospital with respiratory infections. The mortality was highest (61.5 per cent.) in the cases of empyema following measles, and lowest (22.7 per cent.) in the cases in which empyema was the primary condition. In empyema complicating pneumonia, the mortality was 38.2 per cent.; the mortality of all cases of empyema was 40.5 per cent. At necropsy the outstanding features have been the finding of widespread lesions with a tendency to involve serous membranes, the occurrence of a severe bronchitis in the majority of cases, and a type of bronchopneumonia so distributed as often to resemble closely a lobar process.

The relative incidence of empyema complicating pneumonia was high, one month 50 per cent. of pneumonia cases developing empyema. Of 830 cases of measles (including rubella), 4.4 per cent. developed pneumonia or empyema; of this group, empyema was the primary condition clinically in 70 per cent. of the cases.

Laryngoscope, St. Louis

October, 1918, **28**, No. 10

45 Conditions Developing in Chronic Suppurative Otitis Media which Should Constitute Basis for Exemption from Military Service. E. B. Dench, New York.—p. 717.
46 Method of Analysis of Bárány Tests in Pathologic Cases. L. Fisher, Philadelphia.—p. 724.
47 Phonetics in Relation to Speech Defects. M. K. Scripture, New York.—p. 735.
48 Suspension Laryngoscopy—An Aid in Removing Foreign Bodies from the Larynx and Esophagus; Report of Cases. W. B. Chamberlin, Cleveland.—p. 744.
49 Submucous Resection of Nasal Septum. F. M. Shook, Oakland, Calif.—p. 750.
50 Adenocarcinoma of Nose; Four Cases. L. M. Hurd, New York.—p. 757.
51 Simplification of Surgical Treatment of Peritonsillar Abscess. T. H. Cates, Little Rock, Ark.—p. 764.

Medical Record, New York

Oct. 26, 1918, **94**, No. 17

52 Social Responsibilities in Rehabilitation of Disabled Soldiers and Sailors. D. C. McMurtrie, New York.—p. 705.
53 Blinded Soldiers as Masseurs in Hospitals and Sanatoria for Reconstruction and Rehabilitation of Disabled Soldiers. S. A. Knopf, New York.—p. 709.
54 Medical Explorers and Adventurers. W. Browning, Brooklyn.—p. 712.
55 Ipecacuanha and Emetin in Therapeutics. E. W. Koch, Buffalo.—p. 718.
56 Colloidal Silver and Gold Treatment of Lobar and Bronchial Pneumonia, Also of Influenza and Its Complicating Pneumonias. W. B. Holden, New York.—p. 720.
57 Method of Health Conservation. G. F. Boehme, Jr., New York.—p. 722.

Nov. 2, 1918, **94**, No. 18

58 Surgical Treatment of Empyema. W. W. Babcock.—p. 751.
59 Prevention, Diagnosis, Treatment, Immunity and Cure of Tuberculosis. O. Paget, Fremantle, W. Australia.—p. 754.
60 Types of Influenza in Infants and Children Seen in Current Epidemic. L. Fischer, New York.—p. 763.
61 Radium Treatment of Psoriasis. D. W. Montgomery, San Francisco.—p. 765.
62 Intramuscular Injections of Colloidal Sulphur in Treatment of Rheumatic Conditions. W. L. Secor, Kerrville-on-the-Guadalupe, Texas.—p. 765.
63 *Case of Aspirin Habit. D. I. Macht, Baltimore.—p. 767.

63. **Case of Aspirin Habit.**—Macht cites the case of a man who had a chronic periostitis and osteitis of one tibia, who about two and a half years previously found that a tablet of acetylsalicylic acid (aspirin), 5 grains, gave him distinct relief, and therefore he continued to take the drug for the relief of his symptoms. At the beginning one or two 5-grain tablets were sufficient to keep him comfortable the whole day, but very soon habituation was noted and the patient had to increase the dose. For the past two years he has been taking from five to twelve tablets of the drug daily; in other words, from 25 to 60 grains of the drug have been consumed by the patient every day for nearly two years. In spite of the enormous quantity of the drug consumed, very few toxic symptoms have been noted by the patient himself or found on physical examination. The only features of a slightly abnormal character found were obstinate constipation, slight digestive disturbances, and a rather low blood pressure.

Michigan State Medical Journal, Grand Rapids

October, 1918, **17**, No. 10

64 Two Cases of Kidney Calculi. J. E. Davis, Detroit.—p. 387.
65 Early Diagnosis of Phthisis Pulmonum. J. L. Chester, Detroit.—p. 389.
66 Surgical Treatment of Procidentia Uteri. H. Hagerty, Detroit.—p. 391.
67 Hemangioma of the Tonsil. C. A. Campbell, Cleveland.—p. 392.
68 Outline of the Present Scope of the Public Health Administration in Cities. C. G. Parnall, Ann Arbor.—p. 393.
69 Diagnosis and Early Recognition of Typhoid. E. W. Haass, Detroit.—p. 397.
70 Aqueous Solution of Liquor Formaldehyd and 2 per cent. Glycerin in the Treatment of Wounds. A. S. Kitchen, Escanaba.—p. 404.

November, 1918, **17**, No. 11

71 Blood Transfusion in Small Town Hospital—Plea for Its More Frequent Use. W. L. Finton, Jackson.—p. 423.
72 Treatment of Bright's Disease. J. H. Dempster, Detroit.—p. 425.
73 Extravasation of Urine. W. E. Keane, Detroit.—p. 429.
74 Test of Labor. G. Kamperman, Detroit.—p. 434.
75 Country Surgery in Country Hospital. W. J. Herrington, Bad Axe.—p. 438.
76 *Simplified Method of Aspirating Gastric Contents in Hypersensitive Patients. C. D. Aaron, Detroit.—p. 440.

76. **Simplified Method of Aspirating Gastric Contents in Hypersensitive Patients.**—Aaron believes that it is possible to strip this procedure of its terrors and inconveniences by not allowing the tube to enter the stomach at all, and yet obtaining a quantity of gastric contents sufficient for chemical and microscopic analysis. In devising this process, he has been guided by a consideration of the anatomic fact that the lower third of the esophagus is normally distended, forming a continuous open lumen. As soon as the stomach tube reaches that part, the cardia, following the law of contrary innervation, becames relaxed, and as a result the gagging and retching of the patient induces a regurgitation of some of the gastric contents into the esophagus, where

the fenestrated end of the stomach tube is ready to receive it, and whence it is promptly aspirated by the atmospheric vacuum action of the terminal rubber bulb. Thus it is quite unnecessary for the tube to enter the stomach, and the greater the gagging and retching of the patient the easier it is to obtain a sample of the gastric contents. This arrangement also overcomes what has long been considered another difficulty, namely, an abnormally low position of the stomach, where the tube cannot reach the surface of the gastric contents. The reflex effect of the irritation of introducing the tube beyond the tracheal bifurcation causes the contents of the stomach, however low, to regurgitate into the esophagus through the relaxed cardia and thus obligingly meet the receptive stomach tube half way.

Neurological Bulletin

August, 1918, **1**, No. 8

77 *Cerebral Gliomata, Two Cases. I. J. Sands, New York City.—p. 307.
78 Metastatic Carcinoma of the Skull. Its Roentgenological Diagnosis and Its Frequency. T. Scholz, New York City.—p. 319.
79 Aneurysm of the Internal Carotid Involving the Abducens Nerve. C. A. McKendree, New York City.—p. 322.
80 Osteitis Deformans: Report of Two Cases. S. R. Leahy, New York City.—p. 325.
81 Case of Tumor of the Hypophysis. I. S. Wechsler, New York City.—p. 331.

77. **Cerebral Glioma.**—Sands cites the case of a man suffering from hemiplegia with loss of sphincteric control for about one year prior to his death. He showed general arteriosclerosis, blood pressure, 170 systolic, sluggishly reacting pupils; positive globulin and twelve cells, but negative Wassermann, in the spinal fluid. Mentally, he was somewhat incoherent and rambling; he exhibited patchy amnesia with preservation of personality. Postmortem examination showed a glioma in the right parietal region, cerebral and visceral arteriosclerosis, and bronchopneumonia.

New York Medical Journal

Oct. 26, 1918, **108**, No. 17

82 Spanish Influenza in Army. C. L. Mix, Camp Mills.—p. 709.
83 General Survey of Influenza Epidemic. R. S. Copeland, New York.—p. 715.
84 Epidemiology and Administrative Control of Influenza. L. I. Harris, New York.—p. 718.
85 Symptomatology of Prevailing Epidemic Influenza. M. Manges, New York.—p. 722.
86 Nervous and Mental Disturbances of Influenza. S. E. Jelliffe, New York.—p. 725. To be continued.
87 Treatment of Influenza. I. W. Voorhees, New York.—p. 728.
88 Complications of Influenza. A. Kahn, New York.—p. 729.
89 Prophylactic Treatment of Influenza for Prevention of Pneumonia. C. M. Bellows, Brooklyn,—p. 730.

Nov. 2, 1918, **108**, No. 18

90 New York State's Problem of Care of Feebleminded. W. B. James, New York.—p. 753.
91 Nervous and Mental Disturbances of Influenza. S. E. Jelliffe, New York.—p. 755. To be concluded.
92 *Psychopathic Control of Prostitution. J. O. Cobb, Chicago.—p. 758.
93 Diseased Tonsils and Focal Infection; Report of Cases. H. Rodman, New York.—p. 761.
94 Allen-Joslin Treatment of Diabetes Mellitus. A. Woldert, Tyler, Texas.—p. 764.
95 Few Avoidable Errors. R. H. MacNair, Springfield, Mass.—p. 767.
96 Reflex Convulsions During Dentition. C. Rosenheck, New York.—p. 769.

92. **Psychopathic Control of Prostitution.**—Cobb recommends: 1. The employment of psychopathic investigators for all venereal clinics for the purpose of carefully surveying the mental capacity of all arrested prostitutes, with the end in view of securing legislation in all the states for the custodial care of all chronic prostitutes that can be convicted of any of the mental defects under present statutes. 2. A state wide movement for custodial and probationary control of all convicted prostitutes. 3. A state wide movement to buy farms, and to build reformatories, for custodial and probationary control of all feebleminded and certain other types of psychic inferiority.

New York State Journal of Medicine

October, 1918, **18**, No. 10

97 Is Cesarean Section Justifiable in Eclampsia and Placenta Praevia? G. L. Brodhead, New York.—p. 389.
98 Two and One-Half Years' Experience with Conservative Treatment of Eclampsia. R. McPherson, New York.—p. 395.
99 Fibroid Tumors of Uterus. E. J. Ill, Newark, N. J.—p. 399.
100 Some Causes of Stillbirth. J. C. Edgar, New York.—p. 406.
101 Establishment and Maintenance of Breast Feeding. J. P. C. Griffith, Philadelphia.—p. 411.
102 Classification and Serum Treatment of Pneumonia at Camp Upton. R. L. Cecil.—p. 414.
103 Physician and Public. H. L. Winter, Cornwall.—p. 418.

Philippine Journal of Science, Manila

September, 1918, **13**, Sec. B, No. 5

104 *Tissue Invasive Powers of Flagellated and Ciliated Protozoa with Especial Reference to Trichomonas Intestinalis. F. G. Haughwout, Manila.—p. 217.
105 *Various Methods of Serum Application in Bacillary Dysentery. P. T. Lantin, Manila.—p. 261.
106 Portal of Entry in Experimental Chronic Pulmonary (Systemic) Blastomycosis. H. W. Wade.—p. 271.
107 Preservation of Cholera Stool Specimens for Delayed Bacteriologic Examination. C. S. Panganiban and O. Schöbl.—p. 275.

104. **Flagellated and Ciliated Protozoa.**—In the past the attention of parasitologists and physicians has been focused largely on the effects of the parasite on its host—a most natural point of view. But in reviewing the subject, especially in the light of recent evidence, Haughwout says, it is hard to escape the impression that the host, on occasion, may transform an apparently harmless parasite into one that is pathogenic or even lethal to its host. This is entirely apart from conditions of lowered vitality and resistance, which proverbially favor the development of infections of all kinds. He suggests that the term "harmless commensal" has been very much overworked. The case of the intestinal nematode *Ascaris lumbricoides* is in point, and apparently the day is not far distant when the terms "harmless commensal" and "symbiont" will be used in the literature with much greater caution than has been shown in the past. It has long been Haughwout's belief that time would show that all animal parasites that have been regarded as commensals and symbionts in the alimentary tract, if not actully giving rise to lesions, would yet be shown to affect unfavorably the physiologic balance of the host in some way. This paper deals with that thought.

105. **Serum Treatment of Bacillary Dysentery.**—According to Lantin the use of specific treatment seems to be an effective means of checking the progress of the disease in cases of true bacillary dysentery. Of twenty patients whom he has so treated only one patient died. Different methods of administering the serum, namely, intramuscularly, intravenously and by rectum (serum enema), have been employed. Out of seventeen cases in which cultures were made from the feces, six were negative. Of the eleven cases that were found to be positive, two were of the Shiga and one of the Flexner type. Of these twenty cases, five patients were treated medicinally, combined with intramuscular injection of serum, with one death; six patients intramuscularly with no deaths; three patients treated both with intramuscular injections and antidysenteric serum by rectum with no mortality; three patients treated solely with serum by rectum with no deaths; and finally, three patients treated intravenously, with no deaths.

The serum by rectum was given in the following way: The patient was put in the knee chest position. The injection of the serum was preceded by a cleansing enema of 1.5 per cent. solution of sodium bicarbonate; this was followed by another enema of starch solution with a few drops of tincture of opium (60 c.c. with 10 drops of tincture of opium) to diminish the irritability of the intestine; a half hour later the serum was given by rectum. The amount of serum used was from 30 to 50 c.c. daily, depending on the severity of the case, although the serum can frequently be given without any danger and in larger doses. The intramuscular administration of serum was done with the usual aseptic precautions. Twenty c.c. of the serum were given twice a day, usually injected into the buttock. Larger doses may be given, depending, of course, on the severity of the case. Intravenous injection was done by the closed method, and under rigid asepsis into the median basilic vein. To avoid anaphylactic symptoms, 1 c.c. of the serum may be injected intra-

venously about six hours before the full dose is given. Lantin's dosage was 10 c.c. every other day.

Public Health Journal, Toronto

October, 1918, **9**, No. 10

108 Child Welfare in Democracy. J. H. Mullin, Hamilton.—p. 445.
109 Tuberculosis; A Public Health Problem. H. W. Hill, London, Ont. —p. 457.
110 Public Health Act—Its Scope and Application. F. G. Forbes, Liverpool, N. S.—p. 461.
111 Eighteenth Annual Report of Executive Council of Canadian Association for Prevention of Tuberculosis. G. D. Porter.—p. 466.
112 Canadian War Experience. P. J. Bench, Toronto.—p. 473.

South Carolina Medical Association Journal, Greenville

October, 1918, **14**, No. 10

113 Diagnosis of Appendicitis Complicating Pregnancy. G. H. Bunch, Columbia.—p. 250.
114 Urinary Calculi; Diagnosis and Treatment. E. C. Baynard, Charleston.—p. 253.

Texas State Journal of Medicine, Fort Worth

October, 1918, **14**, No. 6

115 Congenital Malformations of Rectum and Anus. F. Paschal, San Antonio.—p. 220.
116 Constipation. E. V. Depew, San Antonio.—p. 222.
117 Pelvic Infection and Application of Drainage. S. P. Cunningham, San Antonio.—p. 224.
118 Indications for Surgical Interference in Cases aof Acute Suppurative Conditions of Midle Ear and Mastoid Cells. E. M. Sykes, San Antonio.—p. 226.
119 Trachoma; Its Importance as Public Health Problem. A. B. Crain, Belton.—p. 229.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London

July-September, 1918, **15**, No. 175-177

1 *Paratyphoid in Children. E. Stolkind and A. Lorey.—p. 161.
2 Tuberculosis as Seen in Public Elementary Schools. J. Priestley and B. Richardson.—p. 183.
3 External Eye Diseases of Elementary Schoolchildren. B. Richardson.—p. 201.
4 Laceration and Infection of Joints in Children. A. Mitchell.—p. 214.
5 Partial Sclerema Neonatorum. G. Pernet.—p. 218.
6 Multiple Papillomata of Larynx Removed by Operation (Suspension Method) After Tracheotomy; Death Five Weeks Later from Acute Membranous Tracheitis and Bronchitis. H. Tod. —p. 220.

1. **Paratyphoid in Children.**—Stolkind and Lorey state that a study of the results of postmortem examinations of paratyphoid cases in children and adults, including those reported in the literature and their own cases, shows that the morbid changes have been observed resembling (1) typhoid; (2) acute enteritis, acute gastro-intestinal catarrh, or acute gastritis, etc.; (3) dysentery; (4) those of a transitional form, that is, inflammation of the intestinal lymphatic apparatus (swollen follicles and Peyer's patches, etc.); (5) septicemia. In some cases no changes in the gastro-intestinal canal were found. Stolkind and Lorey have not been able to find a single recorded case of proved paratyphoid in a child in which the lesions, at the necropsy, resembled those typical of typhoid. They also record a case of intra-uterine infection with *B. paratyphosus* B in the blood of a newborn child. The blood culture and positive agglutination showed *B. paratyphosus* B. The mother had had acute gastro-enteritis with fever some time before. Cases are also recorded of the I. typhoid form of paratyphoid; II. gastro-intestinal form of paratyphoid; III. the choleraic form, and IV. influenzal or respiratory form. The clinical history of the disease is described in detail.

In the treatment of a case of paratyphoid the authors point out that the nursing, general hygiene, diet, and in severe cases drugs are of great importance. Generally the authors give liquid food. In mild cases of the typhoid and respiratory forms they allow the older children biscuits, cooked minced meat, etc. Alcohol should not be given in any case. If stimulants are needed, use tea, coffee, caffein, digitalis, camphorated oil, etc. In many cases of profuse diarrhea, collapse, etc., repeated subcutaneous injections of normal salt solution (one-half to 1½ liters) were of value. For abdominal distension proper diet is required. Turpentine proved absolutely useless in all cases. For toxic meteorism as well as for bacteriotoxic paralysis of the vessels (with frequent filiform and irregular pulse, dyspnea, general weakness, perspiration, pale or cyanotic skin, and sometimes collapse with fall of the temperature), subcutaneous injections of epinephrin with normal salt solution (six to ten times in twenty-four hours), caffein and camphorated oil were sometimes of use. Fever should be treated by hydrotherapy (baths not below 85). Intestinal antiseptics have no value. Vaccines may be employed in severe cases.

British Journal of Tuberculosis, London

Octobr, 1918, **12**, No. 4

7 Early Diagnosis of Tuberculosis in Children. J. C. Macgown. —p. 145.
8 *Comparison of Physical Signs in Early or Suspected Pulmonary Tuberculosis in Children, with Results Found on Examination by Fluorescent Screen. A. A. R. Green.—p. 153.
9 Misconceptions as to Methods Used in Combating Tuberculosis. E. E. Prest.—p. 157.
10 Continuous Inhalation in Treatment of Pulmonary Tuberculosis. C. Muthu.—p. 160.
11 Invisible Wound: Plea for Tuberculous Pensioners. H. B. Collins. —p. 162.

8. **Diagnosis of Tuberculosis in Children.**—In twenty-eight of forty cases examined the physical signs and fluoroscopic findings were in accordance; in twelve cases they were at variance.

Edinburgh Medical Journal

October, 1918, **21**, No. 4

12 Province of Medical Ethics. G. Parker.—p. 191.
13 Training of Student of Medicine. Teaching of Neurology. J. J. G. Brown.—p. 207.
14 Neurology and Medical Curriculum. E. Bramwell.—p. 209.
15 Psychology and Medical Curriculum. B. Hart.—p. 213.
16 Teaching of Mental Diseases in Edinburgh. G. M. Robertson. —p. 225.
17 Teaching of Psychology to Medical Students. T. A. Ross.—p. 231.
18 Teaching of Psychology to Medical Undergraduates. R. D. Clarkson.—p. 240.

Journal of Laryngology, Rhinology and Otology, London

October, 1918, **33**, No. 10

19 *Serologic Investigation of Vincent's Angina. F. E. Taylor and W. H. McKinstry.—p. 289.
20 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 294.
21 Rapid Lateral Version of Patient in Tonsil and Adenoid Operations. B. S. Jones.—p. 308.
22 Sarcoma of Tonsil. D. Guthrie.—p. 310.

19. **Serologic Investigation of Vincent's Angina.**—In only two cases out of a total of fifty-five cases of Vincent's angina which were examined by the Wassermann test was the reaction positive, the remaining fifty-three cases being negative. The positive character of the reaction in these two cases was not due to the fusospirillary infection of Vincent. In both cases the condition was one of Vincent's angina in a subject of latent syphilis. As a result of this investigation and of a careful and critical consideration of cases recorded in the literature, Taylor and McKinstry have come to the conclusion that the prevailing belief in the ocurrence of a positive Wassermann reaction in Vincent's angina has no foundation in fact, and that the two conditions can be differentiated with absolute certainty by the application of bacteriologic and serologic methods; and that when the complement fixation test of Wassermann is positive in cases of Vincent's angina, then a double infection exists, either as a coincident syphilitic and Vincent's infection, or as the ocurrence of Vincent's angina in the subject of latent syphilis.

Lancet, London

Oct. 12, 1918, **2**, No. 4963

23 *Gunshot Wounds of Joints. J. Campbell.—p. 477. To be continued.
24 Some Aspects of Infant Feeding. J. C. Drummond.—p. 482.
25 *Prophylactic Vaccinations against Catarrhal Affections of Respiratory Tract. J. W. H. Eyre and C. E. Lowe.—p. 484.
26 Diagnosis of Early Phthisis. A. Foster.—p. 487.
27 Trench Fever: Critical Analysis of Report of American Commission. W. Osler.—p. 496.
28 Some Considerations of Tuberculosis Problem. R. C. Wingfield. —p. 500.

23. **Gunshot Wounds of Joints.**—Gunshot wounds involving joints form something like 4 per cent. of the total number of wounds met with in the present war. Campbell's paper is founded on an experience of over 800 cases and on operative and postoperative treatment carried out in casualty clearing stations and general hospitals. Campbell says that absolute rest and fixation are the essential principles underlying the successful treatment of all joint wounds in their early stages, and their value cannot be overestimated. The best method for securing them, whether for transport or treatment, is by fixed axial extension of the limb in one of Thomas' or Jones' splints, the limbs being supported in it by bands of perforated zinc, the ends of which are turned round the lateral bars; finally, the limb is well padded, covered with Gooch's splinting, and secured in the splint by a firm bandage. To insure an absence of movement during dressings it is essential for as few as possible of the metal supports to be removed, and then only with the greatest care. No movement, however slight, should be permitted. The use of strips of flannel or cotton bandage to support the limb is strongly condemned by Campbell. They are not rigid, and so permit of an appreciable amount of movement in bed and during transport—sufficient to vitiate the result in many of the more serious cases.

The need for rest and fixation by no means begins in the casualty clearing stations; it is essential for them to be secured at the time the patient is wounded or at the next earliest moment possible. Plaster of Paris is sometimes used instead of splints to secure fixation—in late stages of convalescence it is useful to allow of the patient's getting about. But in early septic cases its use is attended with many disadvantages. Chief of all is the impossibility of preventing the plaster from becoming soiled with the septic discharge from the wound; this then forms a center from which the wound is constantly reinfected. Another important disadvantage is that it does not allow of access to the adjacent parts of the limb, thereby preventing all possibility of massage and obscuring any changes in the neighborhood of the joint.

Asepsis should be secured at the time of operation. Dressings should be changed as infrequently as possible for two reasons, (1) the risk of movement, and (2) the risk of fresh infection from without. To insure a good range of movement it is advisable for massage and movement to be begun as early as possible in cases that have run an aseptic course, that is, about the tenth lesion. Cases that have been septic even to only a moderate degree should have been free from all clinical signs of infection for at least three weeks or even longer, according to the degree of sepsis, before movement is resorted to. The appearance of effusion in the joint or of general or local reaction after movement is an indication for a pause in its application.

The resumption of movement in joints where foreign bodies are retained is liable to be attended by trouble that may quite easily cost the patient his limb. Unless the foreign body is removed by operation, movement is best postponed for at least several months. The application of a tourniquet to the limb prior to operation is essential if a uniformly high standard of results is to be obtained. Washing out of the joint cavity, as a routine measure at a primary operation where the joint is laid open, appears useful.

Every attempt should be made when dealing with early wounds to prevent blood accumulations by obliterating all "dead space" and yet allow of drainage of any exudate that may take place. If primary suture is performed, this may be accomplished by careful hemostasis, followed by the application of a very firm bandage. Should, however, the wound be unsuitable for primary suture or, with suture, still show a dead space, these objects can be gained by using as a pack gauze soaked in sterilized liquid paraffin; this is carefully and firmly pushed into every recess and the limb firmly bandaged. The pack exerts pressure, and so helps in hemostasis, and the paraffin hinders coagulation of blood and serum, and so allows of their drainage along the gauze into the more superficial parts of the dressing. Such a pack may be left in situ for two to four days or longer, the superficial parts of the dressing being changed on the first or second day only if the "dressing has come through." When the pack is removed it may be replaced by paraffinized or dry gauze as required, unless the wound can be entirely closed. The cases in which this treatment yields excellent results are those showing large loss of bone substance involving articular cartilage, and in which the synovial cavity cannot be closed for anatomic reasons.

Unless the wound has been excised en masse, Campbell says, the use of fat grafts to obliterate dead space would seem to be not unattended by risk. Where, however, asepsis can be reasonably guaranteed they yield excellent results. Should any gap be left in an articular surface, one way of obliterating it that yields useful results is to fill it up with a 2 per cent. paste of dichloramin-T in neutral sodium oleate or neutral sodium stearate before closing the joint. A mass of bismuth iodoform petrolatum paste should not be used owing to the risk of bismuth poisoning arising shortly afterward or from the danger of its acting as a foreign body and being extruded later on. Secondary operations in a base hospital are not infrequently required. It is essential to carry them out without removing the splint. To attempt otherwise courts disaster from a recrudescence of septic arthritis with its attendant consequences.

Aspiration is useful in doubtfully infected cases for the purpose of making bacteriologic and cytologic examinations of the joint fluid, but if carelessly performed the damage done to the articular cartilage and synovial lining may immeasurably outweigh the advantages gained. It is advisable to use it as rarely as possible in those cases that are but mildly septic; indeed, here it is scarcely necessary, since the ordinary clinical signs yield information of more practical value for treatment. It is necessary, however, when the intra-articular tension becomes high, otherwise the infection may burst outside the synovial cavity and perhaps track widely along the fascial planes. Exploration and washing out of the joint cavity followed by suture appears to have but a limited application. Such cases as seem suitable for the treatment almost invariably settle down if carefully immobilized in the extended position and left severely alone, aided, perhaps, by aspiration; in those cases in which it is used further operative procedures have nearly always to be resorted to. Should this procedure be adopted, free exit for the fluid should be permitted for fear lest any recesses in the joint cavity that are already locked off by adhesions should be opened up and have sepsis driven into them. All flakes of blood clot, fibrin, and pus should be sought out and removed; finally, the limb is bandaged tightly to prevent exudation and allow of the rapid formation of adhesions.

Morisons' bismuth iodoform petrolatum paste seems to have two valuable fields of use: (*a*) In cases in which a portion of the bone inside the joint has been chiseled away it is advisable to smear a small quantity over the freshly cut surface prior to closing the joint. (*b*) In cases, for instance, the knee, where, after operation, a large gap that cannot be repaired is left in the joint coverings, accompanied by a more or less extensive loss of subjacent bone involving the articular surface, bismuth iodoform petrolatum paste may be smeared over the entire wound surface after excision and the wound closed so far as possible in layers either at once or by delayed suture, after having carefully obliterated dead space with a paraffinized gauze pack. In the treatment of septic arthritis bismuth iodoform petrolatum paste has been largely advocated and not infrequently adopted. Bismuth iodoform petrolatum paste used in this way inside a joint has a serious drawback; it may be ejected later on as a foreign body and so cause considerable trouble on resumption of movement.

In early cases, after efficient excision of the wound, the Carrel-Dakin method need be adopted only. There is no doubt that simple primary suture or delayed primary suture after using bismuth iodoform petrolatum paste yields the better results. On the other hand, when sepsis develops, in the large majority of cases the Carrel-Dakin method yields the better results. Excision of the joint can be used for either early or late cases, and may be either partial or complete.

Amputation is reserved for: (*a*) Patients who are too ill to allow of conservative measures being adopted. (*b*) Cases

in which the comminution of bone is so extensive as to preclude the possibility of successful end-result. (*c*) Wounds accompanied by severe lesions of the main nerves and muscles. (*d*) Wounds in the lower limb accompanied by serious damage to the main vessel and in which there is considerable risk of gangrene. (*e*) Septic cases, in which an extensive osteomyelitis of a large bone, for instance, femur or tibia, is also present.

25. **Prophylactic Vaccinations Against Catarrhal Affections of Respiratory Tract.**—The vaccine used in this work was prepared in two different strengths, the weaker initial dose being followed ten days later by the second stronger dose; in each instance the volume of vaccine administered amounted to 0.5 c.c. This vaccine was prepared from organisms contained in the secretions of purulent bronchitis and in the sputums of other catarrhal cases among the troops in England. It contained:

Organism	Organisms per 0.5 c.c. First Dose	Second Dose
Pneumococcus	50	100 million
Streptococcus	10	50 million
B. influenzae	10	30 million
Staphylococcus aureus	200	500 million
M. catarrhalis	25	75 million
B. pneumoniae	50	100 million
B. septus	50	100 million

This vaccine was designed to produce an artificial immunity, not only against the first three virulent organisms, which are frequently found present in fatal purulent bronchitis, but also to immunize against the other organisms most frequently found in catarrhal sputums and nasal discharges. There may be no reaction, but in such cases the immunity conferred may be as efficient as in those who react. There may be slight reaction. This is the most likely sequela, and will probably occur during the twenty-four hours following inoculation and, apart from a possible tenderness at site of injection, may produce a mild general malaise, tiredness, stiffness, and slight headache. In cases with existing catarrhal discharges these may be temporarily aggravated. There may be severe reaction. This is not expected except in a small percentage of cases. There will develop during the following twenty-four hours an aggravated condition of the above symptoms, and also probably a rise of temperature and pulse rate. In these cases at least fourteen days should be allowed to elapse before the second dose is given. Severe reactions may possibly occur if the occasion of inoculation happens to coincide with the onset of measles, etc. The immunity conferred will probably not last longer than twelve months, and it should not be forgotten that there is always a certain percentage of persons in whom it appears impossible to produce any immunity.

Results: (*a*) 2,081 men inoculated with the initial dose. No reaction, 2,033, 97.7 per cent.; slight reaction, 42, 2.0 per cent.; severe reaction, 6, 0.3 per cent.; (*b*) 1,627 men inoculated ten days later with the second dose. No reaction, 1,607, 98.8 per cent.; slight reaction, 3, 0.7 per cent.; severe reaction, 7, 0.4 per cent. Slight reaction: headache in twenty-four cases; temperature from 99 to 101 in fourteen; sore throat in five; neck stiffness, nausea and fainting in five. Severe reaction: above symptoms more marked and accompanied by temperatures between 101 and 104. In spite of their being so small evidence of immediate reactions there was an increased susceptibility to the prevalent catarrhs of the area. These data show that the extensive use of catarrhal vaccine will not incapacitate troops in training to any appreciable extent. In order to determine whether these inoculated men had gained any appreciable immunity to respiratory catarrhal complaints, the first 1,000 men inoculated, and another selected 1,000 men none of whom had been inoculated with this or any other catarrhal vaccine were watched. It was found that the incidence of the influenza epidemic was appreciably less among the inoculated men than that affecting the average 1,000 of the uninoculated (2 per 1,000, as against 28.4 per average 1,000), a result which amply justifies the prophylactic use of M. C. V. The experimental work on which prophylactic, and still more therapeutic, vaccination was originally based showed clearly that, quite apart from the immediate local and general reactions, there supervened a period of lowered resistance or increased susceptibility toward infection by micro-organisms of the same species as those constituting the antigen, and that this so-called "negative phase" varied in extent from a few hours to two or three weeks, in accordance with the size of the dose of antigen, the general physical condition of the inoculated subject, and other factors. Fifteen admissions were reported between the administration of the first and second doses of M. C. V., and during the ten days following the injection of the second—much larger—dose of vaccine no less than eighty-two patients were admitted. Of course, most of these were quite trivial, and in the ordinary course of events, and among uninoculated men, would never have been admitted, but, nevertheless, even when heavily discounted, these figures emphasize the reality of the "negative phase," and prompt the suggestion that the initial dose might, with advantage, have been somewhat larger, or preferably that the interval between the two inoculations should have been a few days longer.

Sei-I-Kwai Medical Journal, Tokyo

August, 1918, **37**, No. 8

29 Granulitis Mycotica. K. Moteki.—p. 29.
30 Bacteriologic Examination of Secretion and Foreign Bodies of Wounds Caused in War. K. Moteki.—p. 31.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

April-June, 1918, **7**, No. 4-6

31 *Possible Mishaps with Radiotherapy. S. Recasens (Madrid) and V. Conill (Barcelona).—p. 81.
32 *Trephining the Newly Born. A. Brindeau.—p. 103.
33 *Puerperal Infection with Diphtheria Bacilli. P. Balard.—p. 135.

31. **Mishaps from Radiotherapy.**—Recasens and Conill discuss the action of the roentgen and radium rays on the blood, the blood-producing organs, digestive, urinary and nervous systems, the sensory and the endocrine apparatus, on the pregnant, and on toxemia, metastases and dermatitis. They warn of the danger of gangrene when the skin is incised in a region that has been exposed to the roentgen ray. In one of their cases the apparently completely healed laparotomy wound sloughed open three weeks later and it did not heal again for five months. Since then they refrain on principle from roentgen exposure of the exact median zone of the abdomen for fear that a laparotomy might be necessary at some time. The vagina seems to be less susceptible than the skin. There is always a drop in the numbers of leukocytes after roentgen exposures, and they do not return to and somewhat surpass their former figure until after about two weeks. This leukopeny implies lessened powers of resistance, while the leukocytes that have been destroyed release leukotoxins into the blood stream. Toxins are also poured into the circulation when degenerated myomas and cancers are exposed to the rays unless they are well opened and drained. In much debilitated patients this toxemia may prove disastrous.

They warn further that as the primal effect of small doses of the roentgen and radium rays is stimulating, it is important to beware of beginning with small doses which might whip up the malignant disease. They are inclined to accept as an important factor in malignant disease a reduction in the numbers of leukocytes and of connective tissue cells; this suggested the advantage of combining local action of radium with means to stimulate leukocyte action. This they accomplished with diathermy applied to the spleen, and have had surprisingly favorable results with this in cases with such debility that a cure seemed hopeless. The removal of a cancer does not signify a cure so long as the numbers of leukocytes and of connective tissue cells keep low. Sometimes moderate radiotherapy may do great good by increasing these figures although, directly, little influence on the cancer itself is apparent. On the other hand, extremely high doses injure the leukocytes and the connective tissue cells, so that after a phase of transient benefit the cancer progresses more than if nothing had been done.

Rectovaginal fistulas originating from a cancer are permanent, but a fistula of the kind developing from dystrophy under radium treatment of a cancer may heal spontaneously.

They have had this occur in two cases. The bladder tolerates better than the rectum the action of the radium. Good filtering and prudent doses ward off fistulas; they use a brass filter, 1.5 mm. thick, covered with a rubber cot to absorb the secondary rays when the radium is to be used in contact with the sound wall of the vagina. They begin with 70 mg. for twenty-four hours, repeated with 40 mg. with intervals of eight or ten days, up to six or seven applications. Then after a two months' rest the initial dose is repeated. Four months later, if there is still any hard lump, one more application of 60 mg. is made for twenty-four hours. This dosage does not have the inconveniences of strong doses. Too big doses, besides fistulas into the rectum or bladder, are liable to induce necrotic processes, and fuse together the uterus, ovaries, tubes and bladder by an aseptic suppuration with multiple adhesions. Rapid metastasis, occurring with proper dosage, must be regarded as a casual coincidence. They advocate removal of most of the vegetating masses preliminary to the radium exposures to keep down to the minimum the toxemia from absorption. This toxemic reaction grows much less with succeeding exposures.

32. **Trephining the Newly Born.**—Brindeau has done this in four cases; twice for fracture with removal of a sequester, and complete recovery. In the other cases with meningeal hemorrhage of several days' standing, the trephining came too late or necropsy showed already irreparable lesions. The procedure is not so serious as might be supposed; a very narrow opening is enough to correct a depression of the bone. For hemorrhage, he found the operation simple and the drainage perfect, cutting an inverted U shaped flap, the apex just below the parietal protuberance. The groove cut in the bone parallels the radii starting in the parietal protuberance. The dura is incised in this groove. In fifteen hemorrhage cases on record, four of the children were saved. The conditions were exceptionally grave in all. The literature on the subject is reviewed, and four diagrams show the course of the blood vessels to be avoided, especially the anterior region of the dura mater close to the frontoparietal suture. The middle meningeal artery in the newborn slants upward and forward, instead of backward as in adults. There can be no question as to the necessity for immediate correction of any depression in the skull. The depression may occur spontaneously, the contraction of the uterus forcing the head of the fetus against the promontory.

33. **Puerperal Infection Due to Diphtheria Bacilli.**—Balard reports a small epidemic of eight cases of diphtheritic inflammation and false membranes in the vulva in the Bordeaux maternity. The women's infants were given them only to nurse, and none contracted diphtheria, and no throat cases developed from them, and the infectious process was mild. The epidemic was traced to one parturient with a mild sore throat, the true nature of which was not suspected at the time. There was no fever in any case, and antitoxin was not injected. The false membranes did not yield to any of the usual local measures, but they yielded to one or two local applications of diphtheria antitoxin. In two other cases, at the same time, false membranes developed in the vulva thicker, more confluent and tenacious, and not affected by antitoxin. No diphtheria bacilli were found in them, and they subsided under repeated cauterization with tincture of iodin. The ten women were in the common ward, but were tended by a separate nurse. In the fifty-one cases of vulvovaginal diphtheria which he has found on record, only 6 per cent. of the infants contracted diphtheria, and none in the milder cases. By the time the diphtheria is recognized in the mother, the child must have been contaminated, but newborn infants are quite resistant to most infections. In the cases in which an injection of antitoxin was given the infant, its harmlessness was corroborated.

Bulletin de l'Académie de Médecine, Paris

Sept. 17, 1918, **80**, No. 37

34 *Pseudotuberculosis. F. Barbary.—p. 243.
35 *Popliteal Paralysis. Poujoula and Messropian.—p. 252.
36 *Evolution of Free Grafts. L. Imbert.—p. 257.
37 System for Detection and Care for Repatriated Tuberculous Civilians. L. Bernard and P. Armand-Delille.—p. 259.
38 *Epidemic of Jaundice in Roumania. J. Cantacuzène.—p. 261.

34. **Hemorrhagic Spirochete Bronchial and Pulmonary Infection.**—Barbary reports two cases which deceptively simulated pulmonary tuberculosis. The sputum was blood stained and extremely fetid, and the microscope revealed the presence of spirochetes. The acute form subsides in a few days and the chronic form does not affect the general health much, and usually yields to arsphenamin. The disease seems to have been brought to France by troops from Indo-China. It is contagious, and requires isolation of the patient and disinfection of the sputum. Differentiation by microscopic examination of the sputum is particularly important as otherwise the cases are labeled tuberculosis.

35. **Prosthesis for Popliteal Paralysis.**—The light but strong spring device illustrated holds the foot in the axis of the leg, and flexion and extension proceed normally on the contact of the heel with the ground. It is worn inside the ordinary shoe and trouser leg.

36. **Free Grafts.**—Imbert has never seen unpedunculated grafts of any tissue (except skin) grow in size, but they often become adherent, and newly formed vessels may grow into the interstices, but this does not indicate actual vitality. Only the microscopic determination of living cells, with stainable nuclei, testifies to the persisting vitality of the graft. Even at the best, this vitality is of a low degree, and bone grafts, in his experience, all tended to disintegrate and finally disappeared in the course of a few months.

38. **Epidemic Jaundice in Roumania.**—An extensive epidemic is described among troops and civilians which presented the characteristics of spirochete jaundice but no spirochetes were found at any time, and bacteria resembling the paratyphoid B bacilli seemed to be the causal agent. There were no deaths except that pregnant women invariably succumbed. Fatty degeneration of the liver and lesions in the suprarenals were the chief findings. Cantacuzène suggests that the paratyphoid B bacilli, in adapting themselves to the organism after antityphoid vaccination, may develop into an autonomous jaundice-inducing race which, in its turn, may generate an aberrant clinical type.

Bulletins de la Société Médicale des Hôpitaux, Paris

July 5, 1918, **42**, No. 24

39 *Elimination of Quinin. J. Baur, Réveillet, Bocca and Tulasne.—p. 706.
40 *Glycosuria after Gastro-Enterostomy. P. Le Noir.—p. 707.
41 *Duodenal Dyspepsia. R. Gaultier.—p. 709.
42 *Research in Duodenal Chemistry. R. Gaultier.—p. 712.
43 *Addison's Disease. Laignel-Lavastine and R. Porak.—p. 715.
44 *Bacteriotherapy of Meningitis. Florand and Fiessinger.—p. 724.
45 Two Cases of Typhus at Paris. Florand and Fiessinger.—p. 730.
46 Smallpox. A. Florand and N. Fiessinger.—p. 734.
47 Three Cases of Spirochete Jaundice at Paris. L. Martin and A. Pettit.—p. 736.
48 Nervous Influenza in Bretagne. P. Merklen.—p. 738.
49 Committee Report on Hospital Medical Courses for Foreign Students. P. Sainton.—p. 739.

39. **Elimination of Quinin.**—The research done on dogs showed that quinin injected subcutaneously or by the vein diffuses through the organism. The blood soon gets rid of it, and it is eliminated by the kidneys and digestive tract. Part is fastened temporarily by the brain, spleen and liver, but later this is taken up by the blood and eliminated with the rest.

40. **Glycosuria After Gastro-Enterostomy.**—Le Noir found alimentary glycosuria in a certain proportion of persons who had had gastro-enterostomy done for ulcer at the pylorus. It seems to testify to some insufficiency of the pancreas and duodenum.

41. **Duodenal Dyspepsia.**—Gaultier reports cases in which chemical tests of the duodenum functioning revealed marked reduction in the amylolytic, trypsic and steapsic power while the stools showed profuse steatorrhea and deficient bile production. A gastro-enterostomy for ulcer at the pylorus had been done not long before, and the laboratory findings confirmed the clinical impression of duodenal dyspepsia with involvement of the pancreas or of the biliary apparatus or both. The clinical picture included abnormally large or loss of appetite, pains around and above the umbilicus, some-

times most prominent in the liver region, sometimes over the pancreas. With the former they spread to the right shoulder, with the latter to the lumbar region. They came on two or three hours after eating, a sensation of oppression or violent colics with passage of large amounts of gases. Nausea was frequent but vomiting was rare; diarrhea may alternate with constipation. Tympanites two or three hours after eating is a prominent symptom, and deep palpation may reveal tenderness in the duodenal zone. There is a tendency to a muddy complexion, malaise, somnolence, muscular atrophy and weakness, possibly also alimentary glycosuria, and the urea content is reduced as also the proportions between the total sulphur and the incompletely oxidized sulphur. We thus have it in our power now to detect duodenal dyspepsia with a precision hitherto unknown, and thus apply suitable treatment.

42. **Technic for Study of Duodenal Functioning.**—Gaultier uses Fouchet's sensitive test for bile pigments, and pancreatin for testing the pancreatic power. He describes the technic, believing that it has a future, being more exact than Einhorn's method.

43. **Addison's Disease.**—The typical case reported was distinguished by the lesions of the solar plexus and the fact that the suprarenals were free from tuberculosis.

44. **Bacteriotherapy Plus Serotherapy in Meningitis.**—Florand and Fiessinger report a case in which serotherapy for two strains of meningococci failed to benefit as a third strain was involved. An iodized autogenous vaccine was then used, and prompt recovery followed as also in two other cases described, in which the vaccine and serotherapy were used together. In the discussion that followed, Netter related that intramuscular injections often prove useful to supplement the intraspinal in case of meningococcus septicemia. He has also had encouraging results with vaccine therapy in cases rebellious to serotherapy.

Paris Medical

Aug. 24, 1918, **8**, No. 34

50 *Treatment of Hemoptysis. Dumarest.—p. 149.
51 *Psychic Contractures. P. Chavigny.—p. 157.
52 Occult Spina Bifida in Adult. Babonneix and Debeyre.—p. 158.
53 Tardy Fulminating Gas Gangrene. L. Courty.—p. 161.

50. **Hemoptysis in Tuberculosis.**—Dumarest reviews the different factors in hemoptysis, ulceration, congestion, high blood pressure and stagnation, emphasizing the different measures required to combat each. The only measures to control hemoptysis are the mechanical, and among these temporary artificial pneumothorax should be included. This insures direct compression and is especially valuable with hemorrhage from an ulceration. The other types of hemoptysis, from congestion, high blood pressure and hypostasis, are comparatively harmless and stop of themselves in the immense majority of cases, or this can be hastened by repose and ipecac, or amyl nitrite to reduce cardiovascular functioning in the cases with congestion, the *type fluxionnaire*. In the cases for which high blood pressure is responsible, dieting, venesection and moderate exercise are indicated. In the hypostatic and dyscrasic type of hemoptysis, tonics to stimulate the cardiovascular system are called for, keeping erect and exercising. As a general thing, aside from emetics, drugs are of dubious efficacy. Unless applied strictly according to the exact indications, they may do more harm than good. In conclusion, Dumarest remarks that in many cases the chief danger from the loss of blood is the risk of retention and infection. Accidents of this kind may be effectually combated by continuous inhalation of oxygen in treatment, or in prophylaxis in all cases of brief hemoptysis.

51. **Contractures After War Wounds.**—Chavigny refers to the hands twisted back on the wrists and other forms of contracture rendering the limb useless after a war wound, which yet did not involve the region directly. He was astonished to find in palpating these cases that the muscles, instead of being contracted, were completely relaxed. But they are in a condition of imminent contracture, and at the slightest attempt to straighten the limb, the muscles tighten and become like iron to retain the contracture. It subsides anew as soon as the attempts at extension are abandoned. The normal interplay of the muscles has been arrested. This special type of imminent defensive contraction differs entirely from the contracture from a wound of the spinal cord or brain. He says it might be called a *contraction de contradiction*. It seems to be exclusively psychic, which explains the cures realized by Boisseau and D'Oelsnitz, recently mentioned in The Journal, Feb. 23, 1918, p. 576.

Revue Médicale de la Suisse Romande, Geneva

May, 1918, **38**, No. 5

54 *General Physiology of Sense of Gyration. L. Bard.—p. 293.
55 *Prophylaxis of Goiter. C. Roux.—p. 317.
56 *Extension Pincers. F. Forel.—p. 321.
57 *Diverticulitis of the Sigmoid. H. C. Krafft.—p. 325.

54. **Sense of Gyration.**—Bard suggests that we can speak of the sense of gyration as a sixth sense. He shows that it has capacities for adaptation and accommodation like those of the eye and ear. The mechanism of auditory accommodation to distant sounds has a parallel in the differential tension of the two parts of the labyrinth, according to the length of the radius of the gyration. In conclusion he expatiates on the sensations of an emotional order which complete the gyration images. These explain the close connection with the rhythm of sounds, the solidarity of music and dancing. There may yet be developed, he adds, a *musique de la gyration* which will take its place beside the *musique de l'audition*. The perceptions from the sense of gyration have a wide range, from the soothing cradle-rocking to the malaise of seasickness. Like the centers for vision and for audition, the centers for gyration are sensory-motor, and those located in the cortex are closely connected with others in the cerebellum. This connection explains the nature of nystagmus, which is a double reflex action, both cerebral and cerebellar.

55. **Prophylaxis of Goiter.**—Roux insists that goiter can never be cured; when the goiter is recognized it is already too late. Hunziker's idea that goiter is the result of iodin deficit has much to sustain it. An open bottle of tincture of iodin beside the bed at night might yield enough iodin to supply this deficit. Or the schools might have some arrangement to iodize the air in the rooms. Infinitesimal amounts are all that is necessary, and these amounts are the only ones that are harmless. Other measures, addressed to the individual, come too late, Roux reiterates; they are badly managed and often they are dangerous. Goiter must be prevented before any one discovers that the child is a candidate for goiter. Iodin treatment in any form causes loss of flesh, and the still sound parts of the thyroid shrink with the goiterous portion. The immediate symptoms are relieved, and physician and patient are content; no one thinks of connecting disturbances later with the over-zealous treatment.

56. **Extension Forceps.**—A weight is suspended from a chain fastened to the handles of the padded forceps made like ice tongs. The forceps grasp the heel. It is proving a great help in applying a plaster bandage.

57. **Sigmoid Diverticulitis.**—Krafft describes several cases of what seemed to be appendicitis on the left side in elderly persons. Roentgenoscopy explained the disturbances as resulting from an inflammatory process in a diverticulum on the left side. A bismuth or barium suspension has to be injected per rectum as well as taken by the mouth for instructive roentgenoscopy. The chronic course, obstruction and hemorrhages may suggest cancer, and there may be perforation into the bladder. A liquid diet and local application of heat may suffice in some cases, watching over the patient for signs of malignant transformation. Stenosis or acute peritonitis may demand an exploratory laparotomy or artificial anus.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 14, 1918, **48**, No. 37

58 The Declining Birth Rate. H. Guggisberg.—p. 1233.
59 *Mumps Pancreatitis. K. Zimmerli.—p. 1245.

Sept. 21, 1918, **48**, No. 38

60 *Influenza; E. Lenz.—p. 1265; P. Demiéville.—p. 1270.
61 Sarcomatous Leiomyoma of Stomach. R. Fritzsche.—p. 1273.
62 *The Suprarenals in the Severely Burned. T. Nakata.—p. 1283.

59. **Mumps Pancreatitis.**—Zimmerli relates that about 25 per cent. of seventy soldiers in a recent epidemic of mumps presented nausea, loss of appetite and tenderness in the epigastrium. These symptoms were so intense by the sixth day in one case that they led to the discovery of pancreatitis as part of the clinical picture. The enlarged and tender pancreas showed vigorous pulsation from the aorta, but in a second case this phenomenon was not observed. It is probable that participation of the pancreas is responsible for the epigastrium symptoms in mumps. There seems to be a tendency to bradycardia in mumps, but none of the men showed any signs of nephritis. A child of 7 developed suddenly acute hemorrhagic nephritis during convalescence from mumps, but it subsided completely in a few days.

60. **Influenza.**—Lenz relates that he tried to have cotton and gauze masks used in his service at Davos during an epidemic in the winter of 1914-1915. They were made on the principle of an ether mask, and proved successful in preventing infection, but the personnel did not take kindly to the innovation. These masks were later used in some Swiss military hospitals. He suggests the possibility that the influenza virus may enter through the conjunctiva.

Demiéville remarks that the war is undoubtedly responsible for the virulence of influenza this year, on account of the repeated passage of the virus through different members of the hosts of men crowded into camps, etc., flocks of refugees, and crowds of industrial and other workers. He warns of the danger from giving drugs with a depressing action, including alcohol, and remarks that the out-of-bed management of pneumonia, strange to say, has always been extolled more by surgeons than by internists. He advocates emphatically, especially when the heart is irregular, to keep the patient sitting up in bed, or in an arm chair, for four or six hours a day—always, of course, having him lifted, without active cooperation on his part.

62. **The Suprarenals with Severe Burns.**—Nakata found the suprarenals evidently suffering from severe toxic action in cases of severe burns in human beings and in guinea-pigs and rabbits. There is evidently severe functional disturbance, sufficient possibly to explain the fatal outcome in some cases.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 11, 1918, **39**, No. 55

63 *Suture of Wounds of Face. A. S. D'Emidio.—p. 534.
64 *Plastic Operation on Lower Lip. D. De-Francesco.—p. 538.

July 14, 1918, **39**, No. 56

65 Citelli Cell in Mastoiditis. P. Caliceti.—p. 544.

63. **Primary Suture of Lacerated Wounds of the Face.**—D'Emidio recalls that with fracture of the bones in the face, the natural cavities offer exceptionally favorable conditions for drainage at a low point. Hence the skin can be sutured at once in case of a war wound of the face, and the esthetic outcome compensates for the risk. He makes an opening into the adjoining natural cavity, if such does not already exist, and reports two cases which emphasize the advantages of immediate primary suture in these conditions. In both his cases the wound had been incurred the day before.

64. **Plastic Operation on Lower Lip.**—Illustrations are given of a case in which removal of a cancerous nodule just below the lower lip left an almost square hole, the angles at side and top. One of the tongue-shaped pieces of skin above, including the lip, was drawn to slant downward, to fit into the gap below the opposite corresponding flap. This left merely a linear gap shaped something like a Z. The skin was easily drawn up to close this gap, and the detached mucosa of the lip flap utilized to reconstruct the lip. The angular linear scar is now scarcely perceptible, a year later.

Policlinico, Rome

Sept. 15, 1918, **25**, No. 37

66 *Plastic Motor Surgery. (Sulle plastiche cinematiche.) G. Egidi.—p. 869.
67 *Treatment of Chronic Urethritis. G. B. Fazzari.—p. 874.

Sept. 22, 1918, **25**, No. 38

68 *Silver Nitrate Neutralizes Mustard Gas. G. Amantea.—p. 893.
69 *Modified Technic to Induce Pneumothorax. E. Curti.—p. 895.
70 Skeletal Anomalies and Traumatic Lesions. E. Bussa-Lay.—p. 897.

66. **Plastic Motor Surgery.**—Egidi describes three cases which demonstrate conclusively the ease and simplicity of plastic operations to supply a tunnel lined with sound skin in a position to utilize the muscular energy left in the stump. Two illustrations show the methods.

67. **Treatment of Chronic Urethritis.**—Fazzari applies a cylinder, cut out of a sponge, to the metal catheter, just below the rounding tip. This applies the medication exactly where it is needed and holds it there. The sponge does not show on the catheter as it is covered by a shell. This is removed in two parts when the catheter is in place, as is shown in the illustration. The elastic sponge dilates the urethra and scrapes it clean as the sponge is withdrawn at last. This exerts also a kind of massage, and the *irrigatore porta-spugna* has proved very useful in several years' experience with it.

68. **Silver Nitrate Neutralizes Mustard Gas.**—Amantea is assistant director of the Physiology Institute at Rome, and with many others he has been testing various means to combat the effects of the poisonous gases used in warfare. He has found that a 3 or 5 per cent. solution of silver nitrate seems to modify yperite or mustard gas—dichlorodiethylsulphid—to the point of annulling its toxic action. It does this even when the yperite has been some time in contact with the skin, following the yperite down into the depths of the tissues. He states that even with eye lesions from the yperite, the nitrate solution has proved effectual, but should be used for this in a weaker, 1 per cent. solution for instillation in the eye, or a 0.25 per cent. solution to rinse the eye with and to rinse out small wounds after thorough rinsing with water. With large wounds, a 1 per thousand solution can be used with proper caution. His research was done on animals and on himself. The mustard gas or fluid fastens to the superficial tissues at first and only very gradually works its way inward. The silver nitrate has a similar penetrating action, and in his tests neutralized the poison of the yperite when applied for ten or twenty minutes from one to nine hours later. He warns that the yperite should not be washed off with ether, chloroform or alcohol, as these promote its diffusion in the tissues.

69. **Induced Pneumothorax.**—Curti gives an illustrated description of his modification of the ordinary apparatus for artificial pneumothorax. With it the oxygen of the air is absorbed, leaving the nitrogen for injection.

Riforma Medica, Naples

Sept. 7, 1918, **34**, No. 36

71 Dilatation of Pulmonary Artery Revealed by Roentgen Rays. L. Coleschi.—p. 706.
72 *Serotherapy for Surgical Infections. R. Mosti.—p. 709.
73 *The Prevailing Epidemic. G. Sofre.—p. 712.
74 Pyogenic Dermatitis. V. Chirivino.—p. 714.
75 Status of Treatment of Cholelithiasis. E. Aievoli.—p. 715.
76 Status of Epidemic Poliomyelitis. G. Molinari.—p. 717.

72. **Serotherapy in Surgical Infections.**—Mosti relates that he long ago abandoned hypochlorite solutions and all other antiseptics as he obtained far better results with the polyvalent serum made by Lanfranchi and Finzi with many strains of microbes, not excluding anaerobes. He applies the serum locally by the Carrel technic in recent wounds without phenomena indicating sepsis. When there is sepsis, he administers it also by the subcutaneous or intravenous route. The surgical clearing out of the wound must be minutely thorough to begin with. Then the polyvalent serum displays a preventive and curative action against pyogenic bacteria, while it seems to exert a pronounced histoplastic action besides, stimulating tissue repair and permitting early secondary suture. He urges that the advanced posts should be supplied freely with this serum to use it copiously from the very first. He has had no mishaps with it, and all his experience points to its superior efficacy over antiseptics or any other method of treating wounds. The serum is made like the French Leclainche-Vallée serum, originally designed for veterinary use, but more strains of bacteria are used in its preparation. The effect is better in the recent, acute cases. Conditions in the knee are less favorable for this or any treatment than in other joints.

73. **Influenza.**—Sofre relates that in the epidemic in his region there was active nephritis in all the fatal cases. A tendency to hemorrhages was also noticeable, and repeated epistaxis seemed to induce such a turn for the better that he systematically resorted to venesection in treatment of the severer cases. Considerable albuminuria was constant in the grave cases. Children frequently presented a dysenteriform enteritis.

Rivista Critica di Clinica Medica, Florence

Sept. 7, 1918, **19**, No. 36

77 *Idiosyncrasies to Drugs. I. Civalleri.—p. 421. Commenced in No. 35, p. 409.

Sept. 14, 1918, **19**, No. 37

78 *Influenza. C. Cantieri.—p. 433.

77. **Idiosyncrasies to Drugs.**—Civalleri remarks that the term medicinal anaphylaxis is coming to be used in place of the old term idiosyncrasy. He discusses the literature on the subject, especially as quinin is involved. Among other instances he cites Pereira's case in which a second injection of quinin, fifteen years after the first injection, induced a train of grave symptoms that could be explained only as anaphylactoid phenomena in a previously sensitized individual. Civalleri has found this assumption confirmed by experiments on guinea-pigs. Serious and sometimes fatal phenomena were induced almost constantly by parenteral injection of quinin in previously sensitized animals in doses which normal guinea-pigs tolerated perfectly. The effects were most pronounced with intervals of from three to twenty days. The minimal sensitizing dose, by the peritoneum, was 0.04 gm. As quinin is not an antigen, and as there is no production of antibodies with it, the reaction is not true anaphylaxis although closely analogous. It may be described as an allergy to a nonantigenic substance; it may be acquired or congenital or inherited.

78. **Influenza.**—Cantieri describes some cases of postinfluenzal protracted sinusitis, pleural and pulmonary pains, and influenzal apical lesions or diffuse bronchiolitis. In a number of cases he has seen the influenza return during convalescence and run through its course again, suggesting the undulating course of Malta fever.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

September, 1918, **1**, No. 9

79 *Study of Gastric Juice. L. Usobiaga.—p. 385. Conc'n.
80 *The Gastrocolic Ligament. T. Pujol.—p. 399.

79. **Chemistry of Gastric Juice.**—Usobiaga compares the various methods in vogue for qualitative and quantitative determination of various elements of the stomach contents after a test meal, explaining the scientific basis for each.

80. **Gastrocolic Ligament.**—Pujol found the mescolon and the gastrocolic ligament adherent over a longer or shorter extent in 56.6 per cent. of thirty cadavers. A cavity thus formed between the mesocolon and the ligament may present an actual diverticulum. The latter may be single or multiple, or it may branch, as he shows in several illustrations.

Archivos Españoles de Pediatria, Madrid

June, 1918, **2**, No. 8

81 *Kala-Azar on Mediterranean Coast of Spain. A. Frias.—p. 321.
82 *Operative Treatment of Meningomyelocele. D. F. Iruegas.—p. 350.

81. **Kala-Azar in Spain.**—Frias relates that in his district he encountered between 1904 and 1907 eight cases in children, from 13 to 18 months, 2, 5 and 6 years old, of a fatal disease which he reported as cases of leukemia or pseudoleukemia. Since then the finding of Leishman bodies in nine similar cases has retrospectively corrected the diagnosis to kala-azar. The disease is not confined to the coast or to malarial regions, and it can easily be mistaken for visceral tuberculosis, syphilis, Malta fever, or malarial cachexia, etc. Puncture of the spleen is the only certain means for microscopic differentiation of this infantile leishmaniasis. In his first series all the children succumbed, but in the others, under iron, arsenic and quinin, the disease was favorably influenced and some of the children threw it off completely and are in good health three or four years later. He does not specify the doses given. In his experience and in that of others who have been making a study of kala-azar in Spain, the prognosis under proper treatment is thus not so grave as hitherto assumed. He adds that rabbits seem to be susceptible to inoculation of blood from kala-azar children.

82. **Meningomyelocele.**—Iruegas operated in a case of this kind eight hours after birth, with complete success. At this age no anesthesia is needed; the child did not cry or wince during the operation and it tried to suck when a finger was put in its mouth. The head was kept lower than the pelvis to prevent loss of fluid, and this position was maintained for the first few days afterward. All the nerve elements have to be pushed back into their normal place, when this is possible. In some of his other thirteen cases of the kind, however, he was obliged to leave part of the nerve content of the myelocele outside of the spinal canal. To close the gap, he sutures together the inner lips of the sac around the orifice of communication, then sutures the external lips above this, and thirdly, sutures the meninges at the point where they were opened on a level with the skin. Plastic procedures complicate the technic unnecessarily. The wound should be protected against soiling with some impermeable covering, and the diet should be supervised with special care. His mortality was 40 per cent. at first but has been growing lower since these technical points have been enforced. One child developed hydrocephalus afterward, but this subsided under treatment for syphilis.

Archivos Latino-Americanos de Pediatria, Buenos Aires

March-April, 1918, **12**, No. 2

83 *Bacteriologic Examination of Market Milk. P. Brocca.—p. 89.
84 *Meningitis in Nurslings. C. Pelfort.—p. 106.
85 Typhoid in Child with Hemoglobinuria. A. A. Ugon.—p. 120.
86 *Cephalic Tetanus in Child. A. A. Ugon.—p. 125.
87 Purpura in Paratyphoid. J. Bonaba.—p. 128.
88 Welfare Work for Infants. S. Oliva.—p. 142.

83. **Milk at Buenos Aires.**—The experimental research described demonstrated that over 11 per cent. of the specimens of market milk were contaminated with tubercle bacilli, and that pasteurization effectually killed them. None of the fifty-six guinea-pigs in one series of tests or of fifty-two in another series developed tuberculosis after being inoculated with milk pasteurized at 85 C.

84. **Meningitis in Infants.**—Pelfort reports one death in nine cases of cerebrospinal meningitis in infants last year, but three deaths occurred in five more recent cases. Fully 50 per cent. died of the infants only 1 year old or less, while all the other infants recovered. In one of the fatal cases the child had been given 375 c.c. of the antiserum, all but 20 c.c. intraspinally. An induced fixation abscess was followed by transient improvement, but the meningococci seemed exceptionally virulent.

86. **Cephalic Tetanus.**—Complete facial paralysis developed thirteen days after the boy of 12 had been cut in the malar region by a stone. The paralysis was on the same side and there were intense contractures, opisthotonos and fever. This is the second case of cephalic tetanus in Morquio's service. The boy recovered under 150 c.c. of antiserum with cauterization and iodin sterilization of the already almost healed wound. In the other case the symptoms were very mild but progressed to a fatal termination. Children seem to bear antitetanus serum perfectly, even in large doses.

Gaceta Medica de Mexico

July-December, 1916, **11**, No. 7-12. Pub'd Sept., 1918

89 *Prostatectomy. J. V. Uriarte.—p. 203.
90 *History of Medicine in Mexico. N. Leon.—p. 210.
91 Aphasia. A. A. Loaeza.—p. 286.
92 *Bacteriology of Typhus. O. G. Fabela.—p. 289.
93 *Gonorrhea in Children. I. Prieto.—p. 295.
94 Obstetric Abortion. E. F. Montaño.—p. 300.
95 The Cycle of the Proteins. F. Ocaranza.—p. 307.
96 Operation for Empyema. J. M. Gama.—p. 320.

89. **Prostatectomy.**—Uriarte remarks that his experience with perineal prostatectomy has been very unfavorable, some

of the patients being left with fistulas and one with a suppurating epididymitis. On the other hand, in five cases in which the suprapubic route was followed, the immediate and the remote results have been fine. The perineal technic has several disadvantages, among them the necessity for leaving a bridge of prostatic tissue. This remnant of tissue may serve as the source for renewed growth, while its presence prevents the bladder from regaining normal tone.

90. **History of Medicine in Mexico.**—Leon's data refer to the period after the university had been founded in 1553 and a medical department organized in 1582. The various documents, theses, etc., have been mostly preserved, and they throw light among other things on the American origin of syphilis. This is sustained by the sudden introduction of descriptions of syphilis into the medical literature at the close of the fifteenth century. There is no proof, however, that the syphilitic lesions found in ancient bones in America date from before Columbus' day. On account of the humidity in Mexico, very few prehistoric bones are found there, and as the burial places have been used for centuries since then, it is impossible to set any date for them. The same may be said of the descriptions of syphilitic lesions in the early Spanish writings in Mexico. The main work of one of these early Spanish writers, Juan de Cardenas, dated 1591, has recently been republished by the Museo Nacional of Mexico. He says of syphilis that nowhere in the world are its ravages so common or so severe as "in the Indias," meaning Mexico. . . . "It reigns there as if it were the fruit of the soil." He adds, "The nature of this contagious *mal de las bubas* is unknown, but it is not a modern disease. It is new to Europe, but I imagine that the Indians here have had it ever since they occupied the country, as it seems to be inherent in the land here on account of the heat and humidity." . . . "The Indians say that a man without some trace of this disease is not an honest man. It is so common here that the absence of bones in the face scarcely attracts a glance." The Inquisition was introduced into Mexico in 1571 and all books brought into the country had to be registered, and the shadow cast by the Inquisition checked the progress of medical science both in Old and New Spain. In 1592 the viceroy of Mexico complained to the king of Spain that "so many useless emigrants were sent out from Spain, *medicos y literatos,* when the demand was for *agricultores e industriales.*" Cortez founded a hospital in 1524, placing it in charge of a religious brotherhood, and the early foundation of more than thirty-six others is mentioned.

92. **Plotz' Alleged Typhus Bacillus.**—Fabela was unable to cultivate from the blood of fourteen typhus patients any bacilli resembling in the least Plotz' *Bacillus typhi.*

93. **Gonorrheal Joint Lesions in Infants.**—Prieto reports the cases of three infants of from 5 to 20 months old, with a catarrhal urethritis and multiple joint disturbances. The latter promptly subsided under immobilization alone. The gonococcus was found in the urethra or vulva.

Prensa Medica Argentina, Buenos Aires

Aug. 30, 1918, **5,** No. 9

97 *Cystic Sarcomas. P. M. Barlaro and A. Buzzi.—p. 89.
98 Atypical Degeneration of Retina in Adult. E. Dameno.—p. 90.
99 *Syphilis with Gastric and Duodenal Ulcers. R. E. Parody.—p. 91.
100 *Syphilitic Banti's Disease. L. L. Resio.—p. 92.

97. **Cystic Sarcoma of the Liver.**—Barlaro and Buzzi have been unable to find on record any case resembling the one they describe. The primary sarcoma was in the ovary, and the metastases in liver and lung were of a cystic type. The cystic tumors looked like giant graafian follicles, as is evident in the four illustrations.

99. **Inherited Syphilis in Etiology of Gastric Ulcers.**—Parody refers to Castex' recent publications on this subject as of fundamental importance. His views were summarized recently on page 320. Parody reports two cases as further evidence of the causal connection between syphilis and gastric ulcer. A young woman had a gastric ulcer and hematemesis, and investigation then revealed signs of inherited syphilis. Her mother had also had hematemesis on several occasions since puberty, and presented various signs of acquired syphilis. The rapid improvement in the daughter under specific treatment confirmed the diagnosis. For fear of bringing on the hematemesis anew, Parody gave calcium chlorid as a preliminary to the mercurial treatment.

100. **Banti's Disease in a Syphilitic.**—Resio argues that the prompt subsidence of the Banti syndrome under treatment as for syphilis testified to its syphilitic origin.

Revista de Medicina y Cirugia, Havana

Aug. 10, 1918, **23,** No. 15

101 Bacteriotherapy in Typhoid Group. M. M. Dominguez.—p. 409.

Aug. 25, 1918, **23,** No. 16

102 *Results of Operations on Biliary Apparatus. J. A. Presno.—p. 439.
103 *Elephantiasis. V. Pardo y Castello.—p. 449.

102. **Remote Results of Gallstone Operations.**—Presno remarks that the principal function of the gallbladder seems to be merely to maintain the balance of pressure in the bile passages. This function can be readily assumed by compensating dilatation of the common bile duct. This has evidently been the case in 18 of his 67 cholecystectomy cases, as there has been no disturbance of any kind from the loss of the gallbladder during the interval of five years or more since the operation. The group includes three women who have passed through normal pregnancies since. In another group of 21 cases, the cholecystectomy was supplemented by operations on the bile ducts, and in no instance have there been any disturbances from the bile apparatus since. In another case, chronic pancreatitis hampered the functioning of the sound biliary passages, and he implanted the gallbladder in the jejunum. All the symptoms, including those from the pancreas soon subsided to permanent recovery. The theoretical danger of ascending infection does not justify, he thinks, needlessly complicated operations in such cases. This patient has been in excellent health during the year to date. In conclusion he reports a case of what seems to be actual recurrence of gallstones.

103. **Elephantiasis.**—One of the three cases illustrated presents various manifestations of filariasis besides the elephantiasis, including chyluria and chylocele. The arms are the main seat of the elephantiasis in this case; in the third case, the scrotum. It reaches 10 cm. below the knees of the tall man.

Revista de Medicina y Cirugia Practicas, Madrid

July 28, 1918, **120,** No. 1516

104 *Retention of Pancreatic Secretion. L. Urrutia.—p. 97.
105 Sheet Lead in Treatment of Leg Ulcers. S. de Aja.—p. 101.

Aug. 21, 1918, **120,** No. 1519

106 Relations between the Pathology of the Skin and Internal Pathology. D. E. de Oyarzabal.—p. 193.

104. **Pancreatic Retention.**—Urrutia reports two cases which warn that the absence of the pancreatic ferments from the stools does not inevitably imply insufficiency of the pancreas. The outlet may be merely blocked; the amylase thus disappears from the stools and appears in the urine. The pancreas may become insufficient later from the disturbance in the circulation and sclerosis, but even with a cancer in the pancreas, the sound portion of the pancreas may long function perfectly.

Revista Medica del Uruguay, Montevideo

August, 1918, **21,** No. 8

107 *Prophylaxis of Anthrax. Committee Report.—p. 435.
108 Febrile Return of Uterine Cancer. F. Cortabarria.—p. 451.
109 *Echinococcus Cysts in Lungs. M. Legnani.—p. 458.
110 *Lethargic Encephalitis. L. Morquio.—p. 463.
111 Case of Cicatricial Stenosis of Larynx. J. C. Munyo.—p. 478.
112 Osteomas of Nasal Fossas. M. Quintela.—p. 481.

107. **Prophylaxis of Anthrax.**—The Sociedad de Medicina of Montevideo appointed a committee of three to study this question, and their report is an able summary of the present status of our knowledge of malignant pustule and means to avoid it. They regard as indispensable for prophylaxis the compulsory vaccination, by experts, of all animals susceptible of contracting anthrax. A certificate of vaccination should be exacted in sales of cattle and products from them, and other measures should be adopted to ensure this. They give a

circular to be posted in workshops, etc., warning of the danger of anthrax as a very grave and frequently fatal disease, and how it is acquired, and how avoided. The neck should be protected against it with special care, as the pustule is particularly dangerous in the neck. They describe a protecting device to be worn when handling hides, which protects against this. The committee refer in conclusion to certain ranches, etc., where vaccination has amply demonstrated its usefulness, without mishaps of any kind, and they reiterate that anthrax will be eradicated when all the susceptible animals are vaccinated. On the other hand, it now is increasing at an alarming rate.

109. **Echinococcus Cysts of the Lungs.**—Legnani's ten cases teach that this disease should be suspected whenever hemoptysis, small or profuse, develops without anything else to suggest pulmonary tuberculosis or embolism of cardiac origin, even when there is no primary cyst in the liver or elsewhere, and no stethoscopic or radioscopic findings on a single examination. He is convinced that many cases of echinococcus cyst escape detection, and he urges search for signs of it in the sputum, as many pulmonary processes, congestion, pleurisy, chronic bronchitis, etc., may be based on an echinococcus cyst, and simulate tuberculosis by their persistency. The entire absence of signs and symptoms beyond the hemoptysis was most striking in some of his cases, especially in the four boys, 10 to 15 years old, but also in some of the adults. He operated in all the cases, except those with spontaneous vomica and one in which the hemoptysis proved fatal. All the patients were cured at once.

110. **Lethargic Encephalitis.**—Morquio reports three cases which fit into the clinical frame of lethargic encephalitis as described by Netter, recently, in Paris and by Economo in Vienna in May, 1917. His patients were two girls of 10 and 12, and a boy of 13. All were taken suddenly with headache, fever, convulsions and unconsciousness, the stupor persisting till death the fifth and twenty-third days in the two girls. The boy recovered after a period of lethargy with slight meningeal reaction. Necropsy revealed a congestive and inflammatory process in the brain, superficial and diffuse, with apparently normal cerebrospinal fluid. There was no meningitis, no tumor. One of the children slept constantly as if in normal slumber, except for the ptosis and diplopia, headache and general depression, but no general disturbances and no fever. The somnolency gradually became actual coma, with death the twenty-thrd day. Tuberculous meningitis was excluded in all by the apparently normal lumbar puncture fluid. Another child presented a somewhat similar picture with somnolency predominating, but necropsy revealed a tumor of the pituitary body.

Semana Medica, Buenos Aires

June 20, 1918, **25**, No. 25

113 The Newly Born. U. Fernandez.—p. 683.
114 Tuberculosis of Hilum of Lung. J. B. Morelli.—p. 686.

June 27, 1918, **25**, No. 26

115 *History of Hygiene in Argentina. J. Penna.—p. 707.
116 *Treatment of Burns. H. Gregorini and O. Ivanissevich.—p. 708.
117 *Gastro-Intestinal Disorder in Infants. R. Cabrera and T. Scannavino.—p. 712. Commenced in No. 17, p. 465.
118 *Campaign against Tuberculosis. E. R. Coni.—p. 721.

115. **History of Hygiene in Argentina.**—This is the prologue to Coni's book, now on the press, "Memorias de un Medico Higienista." As he was official statistician and a pioneer in matters of public health and demography, as well as in medical education and administration, Penna says that his simple memoirs form practically the history of public hygiene in Argentina.

116. **Film Treatment of Burns and Leg Ulcers.**—Gregorini and Ivanissevich extol the benefits of film treatment of burns, relating several instances of rapid healing under the protecting film. They incorporate some methylene blue in the film they use, but do not give the formula. Leg ulcers rebellious to all other measures for months healed smoothly under it in about a month. After a hemorrhoid operation, the tube to be introduced for flatus is coated with the film, and the anus is covered with it around the tube. It is also useful after circumcision.

117. **Digestive Disturbances in Young Children.**—This serial article discusses the clinical picture with overfeeding, specific enteritis, etc. The writers emphasize that the statistics do not reveal all the mortality from injudicious feeding of infants, as the deaths are attributed to intercurrent diseases which the children might easily have weathered if they had not been so debilitated by the digestive disorders. They reiterate that the ignorance of the mothers is the main thing to be combated, and the only way to do this effectually is to teach in the schools the proper care of infants, impressing it on the schoolchildren by repeating the course and amplifying it year after year. Courses for adults should also be organized, as the most important and necessary part of hygiene is that which corresponds to alimentation of all ages. What is learned in childhood makes the most impression, and the lessons of puericulture and hygiene then inculcated will bear the most fruit.

118. **Campaign Against Tuberculosis.**—Coni reiterates that the campaign against tuberculosis is a function of the state, and that the national, provincial and municipal authorities should all take part in it. In order for it to be efficiently managed, the authorities should place the management in a single hand.

Siglo Medico, Madrid

Aug. 10, 1918, **65**, No. 3374

119 *Changes in Blood with Gastric Ulcer. S. Carro.—p. 633.
120 *Oxygen in Treatment of Rheumatism. C. G. Zabaleta.—p. 638.
121 *Practical Ophthalmology. D. J. and D. E. Wieden.—p. 639.

119. **Blood Changes and Gastric Ulcer.**—Carro rejects the assumption that hyperchlorhydria is the main factor in gastric ulcer, as ulcer may occur without it, while it may exist without development of ulceration. The composition of the blood and conditions of circulation seem to have more influence on gastric cancer than any other factor. The differential blood count may throw light on the intensity of the process and on the prognosis.

120. **Oxygen in Treatment of Rheumatism.**—Zabaleta reports that subcutaneous injection of oxygen has been systematically applied for several years and in thousands of patients with different forms of rheumatism, mostly subacute and chronic, at the dispensary in his charge. These experiences, he declares, have established the efficacy of this technic. It is a powerful adjuvant to other measures, and it is absolutely harmless with care to refrain from piercing a vessel. He usually injects 100 c.c. at the site of the pain, sometimes injecting all the larger joints at one sitting, using up 2, 4 or more liters. The blood afterward shows an increase in the reds and hemoglobin, and there is an increased output of urine and its urea content. A few examples are cited to show the great relief afforded, even in severe cases of long standing. One elderly woman with chronic nodular rheumatism for two years in hands and knees was relieved of all pain and inflammation by eight injections of oxygen. The urea output increased by more than double. The oxygen was injected into the dorsum of the hands and was massaged into the fingers. Rheumatic sciatica for two months in an elderly man yielded to ten injections at three day intervals; the improvement was pronounced after the first injection. The injections were made at the points of severest pain, the sciatic foramen and the popliteal and malleolar regions. In many cases of deforming rheumatism the disease seemed to be permanently arrested, besides the relief of all pain.

121. **Practical Ophthalmology.**—Wieden relates experiences with Barraquer's aspiration extraction of cataract in the capsule. He regards this technic as "one of the greatest achievements of surgery of the eye in current century, as it realizes the ideal operation for which all have been longing." (It was described in THE JOURNAL, June 9, 1917, 1789.)

Hygiea, Stockholm

August 31, 1918, **80**, No. 16

122 History of Medicine in Holland. V. Djurberg.—p. 921.
123 Further Discussion of Poliomyelitis. W. Wernstedt.—p. 955; K. Petren.—p. 964.

Sept. 16, 1918, **80**, No. 17

124 Medicolegal Service in Sweden. A. E. Bastman.—p. 977.